The Huxley Lecture

ON

EARLY RESEARCHES LEADING UP TO THE ANTISEPTIC SYSTEM OF SURGERY.

Delivered at the Opening of the Winter Session of Charing-cross Hospital Medical School on Oct. 2nd, 1900,

BY LORD LISTER, F.R.C.S. ENG., P.R.S.,

EMERITUS PROFESSOR OF CLINICAL SURGERY, KING'S COLLEGE, ETC.

GENTLEMEN,—When the Council of Charing-cross Hospital did me the great honour of asking me to deliver the third of the lectures instituted by them in memory of Huxley, the illustrious former pupil of their school, at the same time conveying their desire that the subject of it should be my own work, I at first reluctantly declined, on the ground that what I had done had been for the most part already published. But when the dean, who assured me that he expressed the unanimous wish of his colleagues, urged me to reconsider my decision, I felt unable to refuse compliance with a request so very kindly made. It also occurred to me that, as my papers are scattered through a variety of media of publication extending over a pretty long period, the earlier ones especially being probably little known to the present generation, it might perhaps be not without interest for me to refer on this occasion to some of the more salient of such observations as bear more or less directly upon the antiseptic system of surgery, while I should at the same time be complying with a wish that has been expressed that I should give some indication of the circumstances that led me to that subject.

As a student at University College I was greatly attracted by Dr. Sharpey's lectures, which inspired me with a love of physiology that has never left me. My father, whose labours[1] had raised the compound microscope from little better than a scientific toy to the powerful engine for investigation which it then already was, had equipped me with a first-rate instrument of that kind and I employed it with keen interest in verifying the details of histology brought before us by our great master. When I afterwards became house surgeon under Mr. Erichsen I applied the same means of observation to pathological objects. One of the earliest records that I find of such work is in the form of sketches of the corpuscles in the pus of a case of pyæmia which occurred after excision of the elbow in a little boy. The cancellated tissue of the humerus at the seat of operation and the adjacent part of the medullary cavity were seen on post-mortem examination to be occupied by thick yellow pus and similar fluid distended the brachial and axillary veins and their branches, including not only those leading from the bone towards the venous trunks, but also those proceeding from other parts of the limb, while the upper part of the axillary was plugged with a firm adhering clot. There was also suppuration in one knee-joint and there were multiple abscesses in the lungs. I was struck with the fact that the pus was to be found not only in the course of the channels leading from the original seat of mischief to the main trunk, but also in branches along which it must have advanced in the reverse direction in spite of the valves of the veins. The plugging of the axillary seemed also a very noteworthy circumstance. Sédillot had shown that multiple abscesses in the lungs were caused by introducing pus into the veins of an animal, and it seemed probable that the collections of pus in those organs in the present case had been of similar metastatic origin. Yet the plugging of the axillary, shutting off the pus in the veins from the general circulation, seemed inconsistent with such a view. I took careful camera lucida sketches of the constituents of the pus from the various situations in which it occurred, and I also made a record of the magnifying power employed by sketching with the camera the scale of a micrometer placed upon the stage of the microscope. And I would venture to recommend this practice strongly to pathologists. The sketch which I then made is as valuable to me to-day as if it had been made yesterday. I see from my drawings what I noted at the time, that the solid constituents of the pus were in no case pus corpuscles such as we then knew them and I also see that they were not leucocytes. I could not explain at the time the facts that I observed, but subsequent investigation has, I believe, made them intelligible.

An epidemic, as we termed it, of hospital gangrene occurred during my house-surgeoncy, and I was charged with carrying out the treatment. This consisted in scraping away very thoroughly under chloroform the brown pultaceous slough and freely applying acid pernitrate of mercury to the exposed surface. The result was, as a rule, that when the eschar caused by the powerful caustic separated under poulticing a perfectly healthy granulating sore was disclosed which healed kindly under ordinary dressing. The only exception to this rule was in the case of a very stout woman in whom the disease attacked an enormous wound of the forearm caused by an accident which had raised a very large flap of skin. In that case the caustic application removed, indeed, the pain and the extensive inflammatory blush, but when the slough separated a small brown spot was seen at one place among the otherwise healthy granulations, and this spread with astonishing rapidity over the entire sore. The treatment was tried again and again with the same result, till, the deep structures of the limb having become seriously involved, Mr. Erichsen resolved to amputate. On the evening before the day fixed for the operation I again put the patient under chloroform and, after scraping the sore very thoroughly, allowed the liquid caustic to lie in pools upon it for a quarter of an hour in order to destroy as effectually as possible all material in the sore which might otherwise infect the amputation wound. With a similar object I washed the skin of the limb thoroughly with soap-and-water, including the shoulder, where it had been decided to perform the amputation. The limb having been removed next day, the stump healed perfectly kindly. Here, as in the other cases, local treatment proved efficacious. I was greatly struck with the clear evidence which these cases seemed to afford that the disease was of the nature of a purely local poison. In the hope of discovering its nature I examined microscopically the slough from one of the sores, and I made a sketch of some bodies of pretty uniform size which I imagined might be the *materies morbi* in the form of some form of fungus. Thus as regards that form of hospital disease the idea that it was probably of parasitic nature was at that early period already present to my mind.

On visiting Edinburgh by Dr. Sharpey's advice in order to see something of Mr. Syme's practice I was fascinated by the prominence that he gave to the pathological side of surgery as well as by his rare diagnostic judgment and his surpassing powers as an operator. Under him I had the unexpected great privilege of a second house surgeoncy, which extended over upwards of a year, and in the great Royal Infirmary I had ample opportunity for observing the behaviour of wounds under the most varied conditions. I was charmed with the superiority of the treatment of recent wounds which I witnessed there over the "water-dressing" which was used at University College after the precepts of Liston, who introduced it in place of what he termed "filthy unguents." Water-dressing, though cleanly when applied, was invariably putrid within 24 hours and had to be changed daily. Mr. Syme placed pads of dry lint upon the bodies of the flaps, leaving the lips of the wound free for the escape of blood and serum, covering all with a single layer of dry lint and a retaining bandage which gently pressed the cut surfaces together. This dressing was left untouched for four days, during which union by the first intention proceeded undisturbed except in the track of the ligatures upon the blood-vessels, while the discharge found on changing the dressing was scanty and not specially offensive. But highly successful as this practice was, it could not be continued in the further progress of the case. The ligatures were separated by a process of suppuration which, even when the tissues had been healthy at the time of operation, became fully established in four days at the latest. The ligatures, on the other hand, were not fully detached till a later and variable period, and so long as they remained they perpetuated the formation of pus in the depths of the wound, the retention of which by a dry dressing long continued would have involved disastrous consequences. Thus, under the best possible management which the knowledge of those days permitted, suppuration was an inevitable attendant on nearly every wound; and so long as it continued there was no security against the advent of one

[1] Vide Philosophical Transactions, 1830.

of the various specially unhealthy conditions, then quite inexplicable, which might ruin the results of the most beautifully planned and executed operations.

The very liberal regulations of the University and College of Surgeons of Endinburgh enabled me on the expiry of my house-surgeoncy at the infirmary to start a course of lectures on surgery qualifying for the examinations of both bodies. The first subject with which I should have to deal was inflammation. The stasis of the blood in the capillaries, as the result of irritating applications, had been long studied in the transparent web of the frog's foot, and Paget had described similar phenomena in the wing of the mammalian bat. The latest contribution to the subject had been made by Wharton Jones, one of my former teachers at University College, who had received the Astley Cooper Prize for an essay in which observations were recorded leading him to the conclusion that the cause of the arrest of the red corpuscles in the capillaries of an inflamed part was contraction of the arterioles. According to this view, which he supported by very neatly executed experiments, the narrowing of the tubes of supply caused sluggishness of flow in the fields of capillaries supplied by them, and this permitted the red discs to aggregate and so obstruct the channels. There could be no more doubt of the trustworthiness of Wharton Jones's observations than of the beauty of the drawings with which he illustrated them. But their relation to inflammatory stasis was not so clear, and I sought further light upon the subject by investigations of my own. My first attempt in this way may be described somewhat in detail. It occurred to me that it would be interesting, instead of the powerful irritants which had been usually applied in such investigations, to try warm water, the mildest of all stimulants to the human body. Having fixed a young frog upon a plate of glass on the stage of a microscope tilted at an angle of 45 degrees, one of the webs being extended in the field of view, I watched the effect of throwing a few drops of warm water upon the web by means of a syringe. The application of the water was little more than momentary, and as it flowed off immediately from the sloping surface I could at once observe the result. This filled me with astonishment; and at first I could not understand what I saw. All appearance of blood-vessels—arteries, capillaries, and veins—had disappeared, the field being absolutely exsanguine. In a short time the circulation was resumed with greater freedom than ever, and on repeating the experiment I found that the first effect of the stimulus was a state of extreme constriction of the arterioles, which kept back the blood-corpuscles but allowed the liquor sanguinis to pass; so that the capillaries and veins, though retaining their former dimensions, were occupied only by the filtered plasma, itself invisible, while their walls were with difficulty discernible under the low magnifying power that I was using. Thus was swept away at one stroke the latest theory upon the subject. The condition of contraction of the arterioles, which Wharton Jones had supposed to be the cause of the accumulation of the red corpuscles in the capillaries, had been present in the most perfect conceivable form, but the result had been the very opposite condition.

The explanation of Wharton Jones's mistake became apparent as I proceeded along the path which opened with so much promise. He had never experimented in a perfectly healthy state of the circulation, but had described with great accuracy what could occur only under morbid conditions, for I afterwards learned that the normal temperature of man is deadly to the cold-blooded frog. That animal, which under ordinary conditions exhibits very remarkable persistence of vitality even after somatic death, is killed by being held for about a quarter of an hour in the hand, and if one of its hind feet be similarly warmed the blood corpuscles will be found packed and stagnant in the vessels of the webs as if mustard or any other powerful irritant had been applied to them. If, on the other hand, in securing the frog for observation under the microscope scrupulous care were taken to avoid needless exposure of the foot to the warmth of the hands, the threads for fixing the toes being tied by means of long forceps and each half of the knot done separately with a fair interval between them, a state of the circulation was seen which is, I believe, even to this day rarely witnessed. The white corpuscles, instead of trailing more or less sluggishly along the walls of the venous radicles—the normal condition according to some modern text-books—move freely along among the red discs; and these being diffused through a due proportion of liquor sanguinis the vessels present a pallor which would surprise anyone who had seen only the ordinary demonstrations of the circulation, but which might have been anticipated from the appearance when in health of the highly vascular sclerotic with its investing conjunctiva, "the white of the eye." Such a method of arranging the foot could not be carried out if the animal were able to struggle, but this was effectually prevented in the following way. The frog, wrapped in cold wet lint, is held in the left hand, and the head, left exposed for the purpose, is depressed with the forefinger so as to stretch the ligament between the occiput and the first vertebra. The junction between the brain and spinal cord is then divided with a tenotome, after which the creature remains perfectly passive as long as may be desired. Comparatively dull though we know sensibility to be in an animal so low in the scale as the frog, it is a comfort to feel that this method must be attended with exceedingly little pain. That caused by the division of the cord is probably almost as momentary as the stroke of the tenotome; and sensibility as well as motion being abolished in the limbs the creature cannot feel the tying of the naturally sensitive toes or the subsequent dragging upon them. This arrangement had the further great advantage of allowing an irritant, even in the form of a drop of liquid, to remain undisturbed at the particular spot to which it was applied, instead of being diffused over the whole web by the movements of the limb. Under these circumstances the highly interesting fact was disclosed that while the web generally was affected through the nervous system with active congestion—that is to say, with arterial dilatation and consequent very free flow of blood—the characteristic stasis was limited to the area on which the irritant acted directly. In spite of the widening of the tubes of supply the blood corpuscles tended to lag more and more behind the liquor sanguinis, till at length complete stagnation occurred. The obstacle to the onward movement of the red discs seemed to be caused by adhesiveness on their part. On careful examination, individual discs were sometimes seen attached to the walls of the vessels. The white corpuscles also showed a tendency to adhere to each other and to the vascular parietes, and this was seen in all degrees from the disposition to trail along the venous radicles, before referred to as occurring under slight irritation, to piling up of colourless granular masses of leucocytes large enough to block a venous radicle.[2] These appearances of the blood corpuscles in the irritated area were such as were seen in blood examined outside the body between two plates of glass. I had observed similar granular masses of white corpuscles in blood from my own finger, as well as individual leucocytes adhering to the surface of the glass, along which, as has been since observed, they crawl by amœboid movements. In the red corpuscles the tendency to mutual adhesions shows itself in different forms according to the species of the animal or its state of health. In the frog the prominence of the nuclei leads to very irregular grouping of the oval cells. In man the biconcave circular discs adhere under normal circumstances in that position which enables their moderate degree of adhesiveness to come best into play, the result being the well-known "rouleaux." The same is seen in the healthy blood of the cow. But in some animals—e.g., the horse—the adhesiveness of the discs is so great that they stick to one another by the parts that come first into contact, producing dense spherical masses large enough to be visible to the naked eye, like grains of red sand. These, falling rapidly through the lighter plasma like a stone in the water, leave the upper part of the liquid free from red corpuscles before coagulation occurs, thus giving rise to the buffy coat, whereas in the cow the delicate network of rouleaux remains suspended like dust, and no buff occurs.

I am greatly surprised to learn that the cause of the buffy coat is stated in some text-books to be slowness of coagulation. Special slowness of coagulation does not occur in buffing blood, nor if it did would it of itself explain the phenomenon. In whipped horse's blood the red discs aggregate into dense masses as in blood freshly drawn, and falling rapidly soon leave a deep layer of serum. In whipped cow's blood, rouleaux forming in the serum as in the plasma, there

[2] The accumulation of the white corpuscles in the vessels of an inflamed frog's web had been previously observed by Dr. Addison, of Brighton, and had been particularly insisted upon by Dr. C. J. B. Williams in his "Principles of Medicine."

will be found, if the animal was healthy, only a thin superficial serous layer, even after the lapse of 24 hours. I once drew blood from a donkey into two similar glass vessels, one empty, the other half full of water. The diluted blood and the undiluted clotted in exactly the same time, but whereas in the normal blood there happened to be an unusually thick layer of buff, comprising nearly two-thirds of the whole mass, the watered blood gave no buff, and the microscope showed that the red corpuscles had lost their natural adhesiveness. Human blood, as is well known, shows the buffy coat in some states of inflammation. But it may also occur in anæmia,[3] and it may well make our profession humble to reflect that in days within living memory buffing of the clot was regarded as an indication for further withdrawal of the vital fluid by venesection.

To return from this digression, adhesiveness of the corpuscles, both red and white, was seen in the vessels of an irritated area of the frog's web, as in blood outside the body. But in a perfectly healthy part no such condition was observed. A string tied round a frog's thigh of course made the blood in the vessels of the foot motionless; but on the slightest touch of the web the corpuscles, both red and white, moved along with the plasma with the most perfect freedom. But I was not altogether satisfied with this evidence of their entire absence of adhesiveness within healthy vessels because the aggregation of the red discs in the frog is of a somewhat indefinite character. I therefore sought further light upon the point in the mammalian bat. Having placed one under chloroform and extended one of its wings under the microscope I temporarily arrested the circulation by compressing the main vessels of the limb, and on examining one of the veins I was much disappointed to see the red corpuscles of its contained blood aggregated. It seemed possible, however, that the part of the membrane which I was examining might be suffering mechanical irritation from pressure between the glass slide on which it rested and the cover-glass which it was necessary to use with the high magnifying power required for the bat's wing; for those were not the days of immersion lenses. I therefore made arrangements to guard against the possibility of such an occurrence; and now, to my great joy, I beheld the red corpuscles, which lay motionless in a considerable venous channel, distributed uniformly through the plasma, without the slightest appearance of aggregation. The animal having been killed immediately afterwards I examined a drop of blood from its heart. The contrast with what I had seen in the healthy living vessel was most striking, the red corpuscles presenting a degree of adhesiveness such as I had never before seen equalled, whether outside the body or without the vessels. When forced to separate from each other by pressure made upon the cover-glass, they became drawn out like threads of a viscid liquid before becoming completely detached. The animal had been suffering from a bad compound fracture in one of the wings. Whether the great adhesiveness of the red discs of the shed blood was due to inflammation caused by the injury, or whether such a condition is normal to the bat, as it is to the horse and the ass, I do not know.

By such facts it seemed to be established that the stasis of the blood in an irritated area—that is to say, the accumulation of the blood corpuscles, both red and white, in the vessels of that area—is due to a tendency on their part to adhere to each other and to the walls of the vessels; that they do this by virtue of an adhesiveness or viscidity which they do not manifest at all within the vessels of a perfectly healthy part, and which, while varying in degree with the severity of the irritation, never seems to exceed that which is observed in blood outside the body.[4]

What was it that induced the blood-corpuscles to assume this adhesiveness under irritation? It was clearly not the result of direct action of the irritant upon them. When the inflammatory congestion, as I venture to term it, was not carried to its extreme degree, the corpuscles, though closely packed, still moving sluggishly along, successive portions of blood, as they passed through the affected spot, were successively affected in the same way, it might be for hours after the irritant had ceased to act. And some of the agencies which produced the effect, such as gentle warmth and mechanical disturbance in the shape of moderate pressure, were not of a nature to act chemically upon the blood-cells and could not possibly leave behind them among the tissues any active substance. The tissues, as distinguished from the blood, were therefore the parts primarily and essentially affected by the action of the irritant. And we have seen that, in their relation to the blood-corpuscles they approached more or less closely, according to the degree of the irritation, the behaviour of ordinary solids, such as glass, as distinguished from the living structures. The natural inference was that they had lost more or less, for the time being, certain special properties which they possessed when in active health as constituent structures of the living body. In other words, certain of their vital functions were temporarily in abeyance. I say temporarily because the extreme degree of inflammatory congestion, in which the capillaries appear as homogeneous scarlet threads of densely packed red discs, is susceptible of complete recovery by resolution if the action of the irritant has not been pushed too far.

The same conclusion followed naturally from a consideration of the properties of irritants. Greatly as they differ in their nature, whether physical, as mechanical violence, heat, and the electric shock, or chemical of the most varied characters, one feature they have all in common: if pushed far enough they destroy the tissues on which they act. Extreme inflammatory congestion is the state which they produce when their action is just short of the lethal degree, and it seemed to follow absolutely that the state of the tissues just short of death must be one of impairment of vital power.

This view was beautifully confirmed by a series of observations to which I was led by a most unlooked-for experience. Before I had adopted the method which I have described of obtaining a perfectly tranquil state of the frog's foot I sought to study the local effect of an irritant by placing on the middle of the web a small piece of moistened mustard, which could not be shifted in position like a drop of liquid when the animal struggled. On removing the mustard after a while to observe its effects I was astonished to see the part of the web on which it had lain not only affected with inflammatory congestion but totally different in colour from the rest of the web in consequence of a difference of arrangement of its pigmentary constituents. Where the mustard had rested the pigment appeared as a delicate black network among the tissues, causing an extremely dark appearance, whereas in the rest of the web it was gathered into small round spots which interfered little with the pallor of the other structures. I at once saw that I had before me direct ocular evidence of an effect of the irritant upon the tissues. The circumstance that I had applied the mustard to one spot only of the web had revealed what had escaped the notice of the many previous observers who had studied the circulation in the frog. I afterwards learned that changes of colour due to pigmentary variation had been observed in Germany in the green-tree frog by von Wittich, who had attributed them to contractions and relaxations of chromatophorous cells, more or less analogous to what is seen on a large scale, visible to the naked eye, in the skin of cephalopods. Very different were the real pigmentary functions in the frog. The colouring matter, which was in the form of granules of extreme minuteness, was contained in cells with offsets that rapidly broke up into ramifications of exquisite delicacy, anastomosing freely with each other and with those of other branches and of neighbouring cells, only visible when the frog was at the darkest, when they appeared under the highest magnifying power at my disposal (a fine $\frac{1}{12}$ of Powell and Lealand's) as fine homogeneous black lines, in which the closely-packed granules were not individually discernible. Under these circumstances the bodies of the cells and their principal offsets were so cleared of pigment as to be almost colourless, so that it was difficult to define their contour.

On the other hand, when the animal was at the palest, the pigment granules were massed together into a thick circular disc, which did not occupy the whole of the body of the cell, being apparently grouped round its nucleus, while the offsets and their ramifications were quite colourless. Any intermediate degrees between these extremes of complete diffusion and perfect concentration of the pigment granules might occur, with corresponding changes in the tint of the animal.

Camera-lucida sketching here stood me in good stead. I doubt if anyone would have credited my description had I not been able to support it by such evidence. For here was

[3] In one case of anæmia, when I examined the blood microscopically, I found the red discs extremely adhesive.

[4] Vide Philosophical Transactions, 1858.

a function entirely new to physiologists. In muscular contraction the entire mass of the cell shrinks, and in ciliary action, the only other visible form of motion then known to occur in animal tissue, the part concerned moves as a whole, so far as we are able to observe it: in the pigmentary changes the form of the cell remained unaltered, but one of its constituent materials was seen to be transferred from place to place among the rest. But drawings made with the camera of a cell in successive stages of concentration of the pigment admitted of only one just interpretation.[5]

These changes in the disposition of the pigment accommodate the tint of the animal to that of surrounding objects. A dark frog placed in a white earthen basin in sunlight soon assumes a dull yellow colour and a pale one is not long in becoming black in a covered earthen jar.

It was very interesting to find that light produces these effects not by direct action upon the skin, but indirectly through the retina and optic nerve. A hood of black cloth, carefully arranged so as to exclude light from the eyes without obstructing respiration, entirely prevented a dark frog from becoming pale in bright sunlight. I was naturally desirous of ascertaining through what efferent channels the nervous impulse that caused concentration of the pigment on exposure to light was conveyed from the brain to the foot. Division of the sciatic nerve had no effect whatever upon the colour of the limb. I then tried cutting through all the structures in the thigh except the bone, the femoral artery and vein, and the sciatic nerve. This also had no influence. But when I added to the latter procedure the section of the sciatic, the animal being then pale, it gradually grew dark below the seat of operation till in no long time it presented from the toes to the wound as great a contrast with the rest of the body as if that part had been covered with a miniature black stocking. Thus the regulation of this function, which is probably closely allied to the action of the cells in nutrition, was not carried on exclusively through special nervous channels, as is the case with the contractions of the voluntary muscles, but one nerve could take the place of others in the duty.[6]

Light was not the only agency that induced pigmentary concentration. It might take place rapidly during struggling of the animal, and I once saw a frog grow pale in its efforts to avoid capture. Here mental emotion perhaps came into play, if we may use such an expression regarding the frog. It seems quite astonishing that nervous action should make the pigment molecules rush thus rapidly to the centre of the cell from its remotest and finest ramifications. Yet a sudden gush of tears or outburst of perspiration, although familiar, is perhaps not less wonderful. Concentration of the pigment took place, as we have seen, under nervous influence and diffusion on its withdrawal. But diffusion was no mere passive phenomenon, such as might follow according to any ordinary arrangement of matter when the agency that caused the grouping of the molecules ceased to operate. The transference of the granules from the body of each cell to its remotest ramifications, and their close packing there, were acts such as a living organism alone could have effected. Pigmentary concentration and diffusion were vital functions of a profound character concerned with the relative distribution of different constituents of the cells. Yet from the very happy circumstance of the conspicuousness of the pigment the results of their activity could be observed with the utmost facility and their behaviour in relation to inflammatory congestion easily studied even under a low magnifying power.

The pigment cells pervade the skin and subcutaneous tissue of which the frog's web consists and are especially numerous about the blood-vessels round which their branches twine abundantly. They must, therefore, be acted on along with the vascular parietes by anything applied to the surface of the membrane. And to state shortly the result of many experiments I found that any agency, physical or chemical, which caused the blood-corpuscle to lag behind the liquor sanguinis in the part on which it operated rendered the pigment cells in that particular area incapable of discharging their functions. Whatever might be their state at the time of the experiment, whether in full diffusion, complete concentration, or any intermediate condition, so they remained in the irritated spot while in surrounding parts of the web, as in the body generally, they changed as usual in obedience to differences of illumination or other circumstances. At the same time they were not killed, for if the irritation had not been too severe they recovered their full activity when resolution occurred.[7]

Thus the pigment cells afforded ocular demonstration of the truth, to which I was otherwise led by inference, that an irritant when producing inflammatory congestion prostrates for the time being the vital energies of the tissues on which it acts. It is to be observed that mere paralysis of the nervous apparatus of the irritated area would have been followed by diffusion of the pigment, as occurred after section of the nerves in the thigh, so that the suspension of diffusion as well as concentration shows that the special pigmentary functions had been arrested. It was, of course, a familiar fact that nerves may be temporarily paralysed by the direct action of pressure, cold, and other agents upon them. But, so far as I am aware, it had not been known that the tissues generally are liable to be thrown into a state of suspended vital energy by injurious influences.

An experiment upon another form of tissue seems so illustrative of this subject that I am induced to relate it in detail. It was an attempt to study the effect of warmth upon the ciliated epithelium of the frog's tongue. It was easy to obtain the material for observation by gently scraping the surface of the organ and diffusing the product in a drop of water. Individual cells were then to be seen with their cilia in motion, which might continue for a considerable period. But special arrangements were necessary in order to avoid killing them with the warmth, to which, as we have seen, the tissues of the frog are peculiarly sensitive. I succeeded by arranging them in a film of water between two extremely thin cover-glasses, the whole mass being so small that it could be very quickly heated and as rapidly cooled. The object being placed under the microscope, I interposed a small cautery at a low black heat between the reflector and the stage and watched the result. The ciliary motion, which had been somewhat languid, became at once increased in rapidity, but resumed its former rate if the cautery was at once withdrawn. If, however, the application was somewhat longer continued, the active motion soon gave place to a state of complete rest, in which the cilia stood straight like the hairs of a brush. The hot iron being removed the instant that this effect was observed slight indefinite movement soon began to show itself in individual cilia, and before long all were again in action as before the heat was applied. If the cautery was made somewhat hotter the motionless condition was produced almost immediately, preceded by a momentary period of excessively active motion; but if the warm application was immediately suspended recovery occurred, as in the former case. And the same experiment might be repeated again and again on the same cells with the same results. But if the warmth was allowed to act for a slightly longer time, or the cautery was made still hotter, recovery never took place, and the bodies of the cells swelled up through endosmotic imbibition of water, having lost all life and obeying the ordinary laws of chemistry. This simple

[5] Max Schulze had not yet described the movements of animal protoplasm; and if he had done so this could have gone but a little way in explaining the phenomena described in the text. The gushing out of homogeneous pseudopodia from the granular body of an amœba may, however, be of an allied nature. I made attempts to see the movement of the pigment granules in cells in which concentration was going on; but their extreme minuteness, together with the excessive rapidity of their apparent motion under the high magnifying power requisite, made them generally elude observation. I fancied I saw an infinite rush of something through the clear space around the already accumulated mass, but I could not be sure. On one occasion, however, I saw some individual granules leave the mass and make excursions into the colourless fluid, as I could not doubt it to be.

[6] Vide Philosophical Transactions, ibid.

[7] I have in rare instances seen an irritant cause diffusion from a state of concentration as a preliminary effect. This was unmistakeably the case on one occasion when mustard was employed. The pigment was in an intermediate (stellate) state when the application was made. In a narrow ring round the mustard, where the volatile oil could only act extremely mildly on the web, the stellate condition gave place to complete diffusion, whereas under the mass, where the irritant had acted at once with full energy, the stellate appearance remained unchanged. Inflammatory congestion, however, had been produced in the ring of full diffusion as well as in the more strongly irritated area. It happened that complete concentration afterwards took place in the rest of the web, while the irritated areas retained the appearances above described. It seems probable that the diffusion under slight irritation may have been the result of the nerves in the irritated part being paralysed before the pigment cells. As is commonly the case with more specialised structures, the pigment cells are a delicate form of tissue, and are more readily killed than other constituents of the web. Hence, if care is not taken to avoid pushing the action of the irritant too far, it will be found, after resolution has taken place, that the pigment cells never recover; the collections of pigment gradually lose their sharpness of outline and are ultimately absorbed, leaving a permanently white spot in the web.

experiment was in various ways instructive. It indicated that ciliated epithelium cells, like the pigment cells, when acted on by a destructive agency to a degree just short of that which is lethal, are thrown into a state in which their vital functions are suspended but not irretrievably lost. It also showed that the cells which compose the animal organism are individually capable of recovering from this state of suspended vital energy without any aid from the general circulation or the nervous system. It further illustrated the important fact that a most injurious agent when operating very mildly may stimulate function without impairing power.[8]

Active congestion, or arterial dilatation with consequent free flow of blood through the capillaries, is an early and prominent symptom of inflammation of a vascular part in man. Unlike the morbid condition which is produced by the application of irritants to the frog's web, it is brought about indirectly through the nervous system. A striking illustration of this was presented in a case which occurred at the period to which I have been referring. A scirrhous mamma had been removed by transverse incisions, together with a considerable amount of integument, and the cutaneous margins had been brought together, in spite of a good deal of tension, by means of a few stitches. Two days later I found the lips of the wound gaping slightly, but the sutures, though subjected to much traction, were still holding, while the skin presented an inflammatory blush extending both upward and downward from the wound, so that it occupied an area of about four inches in breadth. I removed the sutures, and I particularly noticed that no blood escaped from any stitch-track. The procedure occupied about two minutes and (to quote from a note taken at the time) "no sooner had I done this than I observed that the redness had almost entirely disappeared, most parts that were before apparently intensely inflamed being now pale." The irritating agents acted directly on only a minute portion of tissue, but they induced widespread active congestion which subsided at once on their removal. Such results could only have been brought about through the agency of the nervous system.

As I before had occasion to remark, active congestion takes place throughout the frog's web when an irritant is applied to any part of it. It was, therefore, possible to study the phenomenon upon that animal. It was not at that time clearly known by what mechanism the constriction of the arterioles was effected, or by what part of the nervous system it was regulated. Kölliker had recently made his great discovery of the fibre-cells of involuntary muscle and had described them as existing along with elastic tissue in the middle coat of the larger arteries; but the trustworthiness of his observations had not yet been by any means universally recognised, and the structure of the ultimate arterioles, as compared with the capillaries, had not been ascertained.

I found, on dissecting out the vessels from between the layers of the frog's web and examining them with a high magnifying power, that whereas the capillaries showed only a thin, apparently homogeneous wall beset with occasional nuclei, the finest arteries exhibited three coats, of which the middle one was composed of muscular fibre-cells wrapped spirally round the lining membrane. A more efficient mechanism for their constriction could hardly be conceived.[9]

As regards the regulation of the arterial contractions, Bernard's classical experiment of inducing turgescence of the vessels of the ear by section of the sympathetic in the neck and Waller's converse observation that galvanic stimulation of the distal end of the divided nerve made the distended vessels shrink and the ear assume unwonted pallor had demonstrated the great fact of nervous control over the local circulation, but it was not known what part of the nervous centres exercised the function.

In entering on the inquiry I first divided the sciatic nerve, a proceeding which had been stated on high authority to cause relaxation of the arteries of the web. The immediate effect of its division was, indeed, some enlargement of their channels, but this very soon passed off. I then resorted to operations on the roots of the spinal nerves and on the medulla. And, not to weary you too much with details, I may say that removal of all the posterior half of the spinal cord, that portion which alone gives off branches for the hind legs, caused the arteries of the web to relax completely and to remain permanently of about the same calibre as the veins. But if any portion that furnished nerves to the posterior extremities, whether a little caudal segment or a small anterior part, was allowed to remain the arteries, after temporary dilatation, resumed their ordinary and varying dimensions.[10]

It was thus shown that the cerebro-spinal axis is the centre that presides over the contractions of the arteries of the foot, and that the function is exercised by the entire posterior half of the cord; and the temporary effect of section of the sciatic proved that, as is the case with the pigmentary functions, one nerve can take the place of others in the duty. We can thus understand how a flap of skin raised in a plastic operation in the human subject may have its circulation duly regulated through nervous branches in a narrow neck of attachment.

An experiment that greatly pleased Dr. Sharpey would seem to indicate that the vaso-motor function for the hind leg is also discharged by the most anterior part of the cord. A frog having been arranged as before described, the point of a fine needle, curved at the end, was introduced into the wound behind the occiput, so as to prick for an instant the divided medulla. The eye of the observer being over the microscope while this was done, the arteries of the web were seen to contract to complete obliteration of calibre, as in the first experiment with warm water. The contraction of the vessels caused on that occasion by the application of gentle heat to the web was now explained as a "reflex action" through the spinal cord. Their dilatation under irritation remained to be accounted for. In describing that first experiment I stated that the extreme constriction of the arterioles was followed by relaxation to a larger calibre than they had before the water was applied, suggesting the idea of fatigue after exertion. I have now to add that if the warmth was longer continued the subsequent relaxation was more marked and of longer duration, and if the water was made somewhat hotter the contraction that preceded the dilatation was so transient as to be barely discernible.[11]

We seem to have here an exact parallel to what occurred as the result of the action of heat upon the ciliated epithelium. And the natural view seemed to me to be that the ganglion cells of the cord concerned in the arterial contractions were affected by the nervous impulse conveyed to them by the efferent fibres according to the same law that governed the direct action of heat upon the epithelium cells, increased activity or suspension of function being induced according to the degree of energy of its operation. I incline still to believe that this was a correct interpretation of the phenomena of active congestion.

Inflammatory congestion also may be brought about by nervous agency. This fact being of fundamental importance, and not perhaps universally recognised by pathologists, I may describe briefly two unpublished experiments with regard to it which I did shortly after the time of which I have been speaking. Inflammatory phenomena being of a very languid character in the frog I had resort to a higher animal. One of the experiments was simply passing a silk thread through a fold of skin in a rabbit's back and knotting the ends together. When 48 hours had elapsed, the animal having been killed, I removed the portion of skin concerned and examined its under surface. The thread was covered with a yellow line of lymph, around which there was intense scarlet redness for about a quarter of an inch in every direction, contrasting strongly with the paleness of the healthy structures around. And on microscopical examination I found that this depended (to quote from my notes of the time) "partly upon ecchymoses, but chiefly upon well-marked inflammatory congestion of the minutest vessels of the subcutaneous tissue and the deeper parts of the skin."

The other experiment was performed 20 minutes before the first, upon a part of the same animal which, being more sensitive, was more likely to show the effects of nervous disturbance. By means of a fine sewing needle I passed a delicate thread of silk through the superficial layers of the left cornea and cut the ends off close with scissors. Next day the eye was much inflamed and its condition was aggravated on the day following, while the other eye remained

[8] It would appear that all agents that act with destructive effect upon the tissues produce suspension of vital energy without loss of life when operating in a minor degree. Whether all such agents are also stimulants of function when in a still milder form is quite another question.

[9] Vide Transactions of the Royal Society of Edinburgh for 1856, vol. xxi.

[10] Vide Philosophical Transactions, ibid.

[11] Brief contraction of the vessels, followed by dilatation, had been previously observed by others as the result of the application of irritants to the frog's web.

healthy. As I have already said, the rabbit was killed on the expiry of 48 hours. This having been done by pithing, I at once divided the blood-vessels in the neck while the heart was still beating so as to allow all blood that was free to flow to escape from the head. I then removed the two eyes and cut them both across transversely midway between the cornea and the optic nerve and compared the inflamed eye with the healthy. I will not detain you with a description of the anterior halves of the globes, though they were very interesting, but will at once speak of their posterior portions, more remote from the part where the exciting cause had been in operation on the left side. In that eye the retina was much more readily detached than in the right and showed small spots of ecchymosis. The two choroids presented a striking contrast, "the vessels in the right eye," to quote my notes again, "being not at all conspicuous, while in the left eye the membrane was scarlet, and this depended not merely upon fulness of the vessels but upon darker tint of their contents in consequence of excess of red corpuscles."

It is matter for discussion how inflammatory congestion is brought about by nervous action. It may be doubted whether active congestion could alone give rise to it, though it is by no means inconceivable that the excessive supply of the nutrient fluid might in time exhaust the tissues by over-stimulation and so bring about more or less of that impairment of vital energy which we have seen reason to regard as the essential cause of the blood-corpuscles lagging behind the liquor sanguinis. Or it may be that the nerves produce this weakening effect upon the tissues by immediate action upon them. From that point of view the proof afforded by the pigment cells of the influence of the nerves over processes going on within cells seemed to me peculiarly interesting. And we can conceive of nervous impulse impairing their energies either by over-stimulation followed by exhaustion or by immediate prostration of their powers as by an electric shock.

That the latter idea is not altogether out of the question seems to follow from a kind of experience familiar to surgeons. I will mention one instance of this which produced a great impression upon me. A healthy man, in the middle period of life, had been operated on by lateral lithotomy. All went perfectly well till about 10 days had elapsed, when the renal secretion, which had passed through the wound since the operation, flowed for the first time through the natural channel. In those days, when lateral lithotomy was the routine treatment of calculus, it was well understood that the mucous membrane becomes in a few days unaccustomed to the urine, which then acts upon it with irritating effect, and the result may be a violent general nervous commotion in the shape of a rigor. This may be immediately followed by complete suppression of secretion by the kidneys, and if this does not pretty soon pass off it is fatal. Such was the case with the patient to whom I am referring. In spite of hot applications to the skin—which sometimes work like a charm in such circumstances, operating, as it would appear, by distracting, so to speak, the attention of the nervous system from the affected organs—that man died within a few hours of the rigor. On post-mortem examination the kidneys presented on section an appearance that I have never forgotten—scarlet redness throughout what in other respects appeared to be perfectly sound structure.

The previous healthiness of the patient seems to preclude the idea that this grave disorder of the kidneys could have existed before the rigor. We are therefore led to believe that the prostration of vital energy which inflammatory congestion implies was caused by the irritation in the urethra. If such was the case the remoteness of the kidneys from the source of disturbance makes it certain that the disorder was brought about through the nervous system. This effect could not possibly be produced, like arterial relaxation, by failure of the nerves to act. For we know that the tissues retain their vital energies for a considerable period after entire severance from the body, as is illustrated by the success of Thiersch's method of skin-grafting. We are therefore driven to the other alternative and conclude that the inflammatory congestion of those kidneys was caused by nervous action upon the renal tissues, and the suddenness with which the effect was produced strongly suggests the view that the prostration of their vital power was the primary effect of an unwonted nervous impulse.

Abnormal effusion of liquor sanguinis from the vessels, another marked feature of acute inflammatory disturbance in man, would seem to be a natural result of any degree of inflammatory congestion. I used to illustrate to my class by a simple experiment the enormous increase which takes place in the pressure of a liquid upon the walls of a tube through which it is flowing when an obstacle is opposed to its passage. When, therefore, the corpuscles begin to block the capillaries the plasma will naturally be forced in undue quantity through their porous walls. When inflammation assumes an intense degree the effused liquor sanguinis has the peculiarity of being coagulable, producing by its solidification the characteristic "brawny" swelling of the parts among which it is poured out. In this respect it differs from the normal plasma forced by pressure through the walls of healthy capillaries as the result of venous obstruction. Here the swelling has the "doughy" character of œdema, a condition also caused by inflammation of a mild degree. To that point I shall have occasion to refer again.

I designated by the title "direct inflammation" the morbid state produced by the direct operation of noxious agents upon the tissues as distinguished from inflammation brought about through the medium of the nervous system. This distinction appears to me to be of great importance and it enables us to understand what would otherwise be quite unintelligible. One beautiful instance of this is the behaviour of a recent wound in tissues previously healthy. When our means of arresting bleeding were less complete than they are at present it was no uncommon thing to be summoned a few hours after an operation on account of hæmorrhage. It was a sad thing to have to tear asunder the lips of a wound already well glued together by lymph in order to gain access to the bleeding point. This lymph was neither more nor less than liquor sanguinis which had been effused from the cut surfaces and had coagulated. From the quality of the effusion we should suppose that we had to deal with inflammation of a very intense character, yet the lips of the wound were perfectly pale and entirely free from the active congestion which is the very earliest sign of inflammatory disturbance. How could this inconsistency be reconciled? Very simply, as I believe, by the aid of the principles which we have been discussnig. Mechanical violence is a noxious agency producing effects proportionate to its degree. A very blunt implement passing through the tissues kills the surface of the parts which it divides; and in former days we had to poultice a "contused wound" till the sloughs separated. A sharp knife does not destroy any part of the tissues, but it throws them in a microscopically thin layer into a state of intense inflammatory congestion, attended with effusion of coagulable liquor sanguinis. But this noxious agency is only momentary in its operation. It has no time to cause active congestion through the nervous system, but at once leaves the injured tissues free to recover by virtue of their own inherent powers. If the instrument be very sharp the layer of lymph will be very thin, unless some other disturbing cause come into play. But it is always sufficient in amount to serve the beautiful purpose of adhesion. It is comparatively rarely that direct inflammation is met with thus pure and simple in practice. The two forms, the direct and indirect, are commonly more or less associated. Thus, putrid discharge in a wound is an acrid irritant, as I once experienced personally in the keen smarting of an abrasion on the back of my hand smeared accidentally with the pus of a stump that I was dressing. Hence during the period that elapses before the divided tissues are clothed with that wonderful protecting layer which we term granulations such discharge causes direct inflammation in the structures on which it acts immediately, while it also induces in neighbouring parts inflammation through the nervous system.

When Marion Sims had published his remarkable success with the silver suture in gynæcology I resolved to give it a trial in general surgery. At that time, as assistant surgeon in the Royal Infirmary of Edinburgh, I had charge of the Lock Hospital, and one of the patients having an atheromatous tumour of the scalp I removed it and brought the edges of the skin together with a silver stitch. No vessel required ligature and the wound healed without suppuration. As the suture created no disturbance I left it *in situ* for about ten days, when I took the patient over to Mr. Syme and showed him the skin about the wire perfectly pale and natural in appearance without a trace of discharge, whereas a silk stitch would within four days have infallibly caused suppuration with surrounding redness. Mr. Syme at once recognised the importance of the facts and from that day forward the silver suture was used for all wounds in the

clinical wards until, some years later, antiseptic measures caused it to give place to the more convenient and no longer hurtful silk.

In thinking over this striking difference between the effects of the two kinds of suture it seemed to me clear that it depended on the silk imbibing blood and serum, which, undergoing decomposition in its interstices, grew more irritating the longer the process continued, whereas the metal gave no hold to the organic liquids, which were shed unaltered as fast as they were effused. From these and other analogous considerations I taught my class at that time that decomposition of the organic liquids was the essential cause of suppuration.

The coagulation of the blood, while it is a matter of fundamental importance in physiology, has peculiar interest for the surgeon on account of the special feature of coagulability of inflammatory exudations and the part played by lymph in the healing of wounds, and various other pathological phenomena, such as the sealing of divided arteries by blood-clot. Towards the close of the investigations which I have been describing there was published another successful Astley Cooper Prize essay, "Coagulation of the Blood," having been the subject selected by the judges for the competition. The author of this dissertation, the late Dr. Richardson, propounded the new theory that the solidification of blood shed from the vessels was due to the escape of ammonia, which, as he believed, held the fibrin in solution. I was at first much struck by the evidence with which he supported this view, and my first experiments on the subject were made with the object of strengthening that evidence where it seemed to me weakest. In one of these, a sheep having been placed under chloroform, I sought by means of a common tourniquet to constrict the thigh so extremely as to prevent the ammonia from escaping when the vessels were divided and so keep the blood fluid in spite of amputation. Rigidity of the muscles prevented me from carrying out my intention, but I tied a bandage firmly round the foot below the joint where the butcher removes it, so as to retain the blood and, as far as might be, the ammonia also. The foot being severed, I took it home, and, having raised a portion of the skin so as to expose a subcutaneous vein, I investigated the state of the blood in it. I found it indeed fluid, with one exception, full of significance, though I did not see its import at the time—viz., where the cord used by the butcher for tying the feet together had pinched the veins against the bone, there, and there only, was the blood in them coagulated. I remember being a little disappointed, as well as puzzled, by that appearance. It was not in harmony with the theory in which I was at the time disposed to believe. And yet how replete were the facts with possible instruction! Compression of the veins had certainly given no opportunity for escape of ammonia. It is equally certain that the cord did not make the blood coagulate by any direct action upon it; for the cord, so long as it remained in position, kept the parts of the veins which it compressed empty of blood. It is clear that the effect was due to the action of the cord upon the walls of the vessels. Not that it had wounded them, nor is there any reason to suppose that it had killed them. No doubt if the animal had been released instead of slaughtered the veins would in due time have recovered. But the mechanical violence which the hard round cord exerted, being pretty severe and long continued, had prostrated for the time the vital energies of the tissues on which it had acted, and we had in coagulation of the blood a repetition of the class of phenomena which we had studied in the blood-corpuscles.

But how was it that the blood remained fluid in other parts of the vessels? To my surprise I found that the same continued to be the case for days afterwards. And thus accident led me to recognise what I afterwards found to be the general rule—viz., that the blood, though in mammalia it coagulates soon after death in the heart and main trunks, remains fluid for an indefinite period in minor branches. The clotting in the heart had been an object of familiar observation in post-mortem examinations in the human subject and it seems to have been assumed that the same thing occurred throughout the vascular system.

The sheep's foot with the blood retained in its veins by a bandage applied before the animal was slaughtered afforded the opportunity for very simple but instructive experiments on the nature of the relations between the living vessels and their contained blood. For that the veins retained their life, even after the lapse of more than 24 hours after severance of the foot from the body, was shown by their shrinking by muscular contraction on exposure.[12] Thus I found that a piece of glass introduced into a vein occasioned coagulation in its vicinity. The end of a sewing needle pushed through the wall of a vein otherwise uninjured became after a while encrusted with a layer of fibrin deposited upon the part within the vessel, while the rest of the blood in it retained its fluidity.[13] On the other hand, having injected air into the vessels on another occasion, I found seven hours later that their contents were a frothy mixture of blood and air, the walls of the bubbles of which were fluid but solidified when shed. Sir Astley Cooper had been of opinion that the living vessels kept the blood within them fluid by acting in some way upon it—in other words, his view implied that the blood had a spontaneous tendency to coagulate which was held in check by the active operation of the living tubes that contained it.[14] Facts such as I have just mentioned seemed to me to indicate that the ordinary solid was the active agent, determining the formation of fibrin as a thread does the deposition of sugar candy, while the healthy living tissue had the remarkable peculiarity of being destitute of this general aggregating property of solids, behaving rather like the self-repelling particles of gases.

It was not only in vessels of small size, like those of the sheep's foot, that the blood remained fluid in parts severed from the body. I found that the same was the case in veins of the dimensions of the jugular of the ox or the horse, and this in spite of their entire detachment from surrounding structures. The vessel being exposed after the animal had been felled at the abattoir two ligatures were applied in order to retain the blood in it, after which it was removed and taken home with as little disturbance as possible. The blood in it retained its fluidity for upwards of 24 hours, affording opportunity for most instructive experiments. Of these I must content myself with describing one. A portion of an ox's jugular with its contained blood being held vertically the upper part was removed along with its ligature and the lips of the now open venous compartment were held apart with forceps by aid of an assistant, while a thin glass tube, of rather smaller calibre than the vein and open at both ends, was passed down into the vessel with the utmost steadiness so as to disturb the blood as little as possible. The upper end of the tube had been drawn out with the blowpipe to much smaller size and a short piece of india-rubber tubing adapted, so as to admit of clamping with catch-forceps. When blood appeared at the end of the caoutchouc tube the clamp was applied. The whole apparatus was then rapidly inverted and the piece of vein removed, leaving the blood in a vessel of ordinary solid matter without any contact of living tissue. The glass tube was steadily clamped to a retort stand and its orifice covered with a loose cap of guttapercha tissue to exclude dust, after which all was left undisturbed for 24 hours. On then turning out the blood I found it all fluid except a layer of clot about one-eighth of an inch in thickness which encrusted the interior of the tube, and also a little clot at the surface which might be explained by some drying on account of the imperfect fitting of the cap. The fluid part of the blood soon coagulated. The result of this experiment seemed to me of itself sufficient evidence that the blood requires no action of the living vessels to maintain its fluidity and that the hypothesis of such action was superfluous. At the same time the extreme care required in order to ensure the success of such an experiment indicated

[12] As regards the ammonia theory, an experiment which proved universally convincing was this: Having exposed a vein in the sheep's foot, I pressed the blood out of it at one place and applied liquor ammoniæ to the empty portion, protecting neighbouring parts of the vessel from the vapour with olive oil. After sufficient time had passed for the volatile alkali to fly off, blood was allowed to return to the part on which the caustic liquid had acted. There it soon coagulated; the very substance, a mere trace of which should have kept it fluid according to the theory in question, having brought about its coagulation through its injurious action on the living vessels.

[13] The results of experiments of this kind vary considerably according to the time which has elapsed after the foot was removed from the body. For the blood undergoes pretty rapid impairment of its coagulability within the vessels of the severed part, and finally loses it altogether. It then, of course, remains fluid long after the veins have lost all life.

[14] Brücke of Vienna, who had also competed for the Astley Cooper Prize, had arrived at a similar conclusion. He experimented largely with the turtle's heart, which, as in cold-blooded animals generally, retains its life long after removal from the body, the blood in its cavities at the same time retaining its fluidity. I had not seen Brücke's important essay when the experiments referred to in the text were performed.

the subtilty of the influence of an ordinary solid in bringing about coagulation. A very simple experiment performed in a butcher's establishment on the way from my father's house at Upton to deliver the Croonian Lecture before the Royal Society illustrates the same thing. I received blood from the throat of an ox into two similar open earthen jars (gallipots), and slowly moved a clean glass stirring rod through the blood of one of them for a second or two, and then left both vessels undisturbed. In the course of a few minutes the blood that had been thus gently and briefly stirred was a mass of coagulum, while the unstirred blood was still fluid, except a thin layer of clot encrusting the wall of the jar. In course of time it also coagulated completely. Now we know from the experiment with the ox's jugular that coagulation is propagated with extreme slowness, if at all, from a clot in blood perfectly undisturbed. The earlier coagulation of the main mass of the stirred blood was, therefore, not caused by propagation of the process from a layer upon the surface of the jar, but must have been the result of the brief agency of the glass rod.

A little before the delivery of the lecture referred to,[15] I became aware of the recent very important observations of Schmidt, who showed, as had been foreshadowed many years previously by Andrew Buchanan of Glasgow, that normal liquor sanguinis does not, as had been supposed, contain fibrin in solution, but only one constituent of that substance, the other, which Schwann termed "fibrinogen," being derived from the blood corpuscles. The ordinary solid, therefore, in determining coagulation does not cause the deposition of fibrin already formed, but so influences the corpuscles as to make them give up an ingredient necessary for the formation of that insoluble body.[16]

With this further light upon the subject the conclusions derived from the experiments to which I have referred seem to explain the special coagulability of the exudation in intense inflammation. Under intense irritation the capillary walls will naturally be affected by the noxious agency as the veins of the sheep's foot were by the constricting cord and, like them, act upon their contained blood as if they were ordinary solids. The plasma of that blood will therefore receive from the blood corpuscles the material requisite for forming fibrin and, passing through the pores of the capillaries with that addition, will constitute a coagulable exudation.[17]

On the other hand, if irritation is less severe, although the tissues are impaired in vital activity, the walls of the capillaries may not be reduced to the condition of acting like ordinary solids in their relation to coagulation, in which case the result will be the effusion of normal uncoagulable liquor sanguinis.

It does not, of course, follow that the absence of adhesiveness of the blood-corpuscles is due to the same cause as the fluidity of the blood. It might quite well be, for example, that the corpuscles are maintained in the healthy condition by nervous action, whereas the state of the healthy living vessel which ensures fluidity of the blood would seem to be a profound property of the constituent matter of the lining membrane which, when in active health, behaves, as we have seen, like a gas rather than an ordinary solid.[18]

In point of fact a very interesting observation which I made long ago, but to which I have not before directed attention in this point of view, proves that an extreme degree of adhesiveness of the red discs may exist within a blood-vessel the walls of which are in perfect health with reference to coagulation. If a horse's jugular vein, obtained in the manner which I have described, is suspended vertically, the blood in it remains fluid for an indefinite period, but the red corpuscles soon fall from the upper parts of the fluid, leaving a buffy layer of plasma, readily seen through the translucent wall of the vessel, just as occurs in blood outside the body. And this behaviour of horse's blood implies, as we have seen, a very high degree of adhesiveness of the red discs. If we compare this with the perfect absence of grouping of the red corpuscles which was observed within a vein of the bat's wing in spite of their extreme adhesiveness in the same animal in blood shed from the body, we cannot but be greatly struck with the contrast. As regards the circumstances of the two vessels we see that in the bat's wing the vein was a small one in its natural relations to surrounding structures, whereas the horse's jugular was of very large dimensions and isolated from the rest of the body.

It seems impossible that the adhesiveness of the corpuscles in the jugular vein was the result of isolation from other structures; for adhesiveness of corpuscles is not occasioned in the vessels of the frog's web by amputation of the limb, nor does the state of the tissues that causes it result from complete detachment from the body in the human subject, as we may safely infer from the persistent healthiness of a piece of skin entirely transplanted in skin-grafting. We seem, therefore, forced to the conclusion that what keeps the blood-corpuscles from adhesiveness is a local function of the tissues, quite distinct from that molecular constitution of their component material which renders them neutral in relation to coagulation of the blood; and it seems necessary to ascribe the adhesiveness of the red discs in the horse's jugular to the mass of the blood in it being too great for that function to control. This function, unlike that property of the tissues which ensures fluidity of the blood, must therefore exert an active influence upon the vital fluid. It would seem to be much more easily disturbed by noxious agencies, for adhesiveness of corpuscles may exist in any conceivable degree according to the degree of irritation, whereas coagulation seems to imply severe disorder.

The mobility of the black pigment granules of the frog has often struck me as extremely remarkable. Perfect absence of any tendency to aggregate on their part must be fully as essential to the freedom with which they move through the exquisitely delicate ramifications of their containing cells when diffusion gives place to concentration, as want of adhesiveness of the blood corpuscles is to their free transit through the capillaries, and I cannot but think that the two phenomena are analogous. It may be, for aught we know to the contrary, that the pigment granules may be themselves living entities. Their uniformity in size is in favour of such an idea. Our fathers would have been greatly astonished to learn that the chlorophyll grains of vegetables were, as has been shown in recent years, living organisms, multiplying by division like the nuclei of their containing cells; and though the pigment granules are much smaller they are probably greatly surpassed in minuteness by many microbes which, though hitherto invisible to us, we believe from analogy to be the causes of some infective diseases. But, however this may be, the perfect mobility of the pigment cells seems to me a special property which they possess as constituents of the living body; in other words, to use once more the expression which in the present state of our knowledge is indispensable, a vital property. If this be so, we understand what would otherwise be very unintelligible—viz., that when the pigment cells have their functions temporarily suspended by a noxious agent the granules do not become diffused as they do when withdrawn from nervous influence, but remain exactly as they were before the irritant was applied, whether concentrated, diffused, or in any intermediate state. If we suppose that the pigment cells, like the blood corpuscles, acquire under irritation a tendency to mutual aggregation which they do not possess in health, it follows as a matter of course that when vital energy is suspended by the noxious agency they will adhere together and retain for the time their relative positions.

After being appointed to the Chair of Surgery in the University of Glasgow I became one of the surgeons to the Royal Infirmary of that city. Here I had too ample opportunity for studying hospital diseases, of which the most fearful was pyæmia. About this time I saw the opinion expressed by a high authority in pathology that the pus in a pyæmic vein was probably an accumulation of leucocytes. Facts such as those which I mentioned as having aroused my interest in my student days in a case of pyæmia made such a view to me incredible, and I determined to ascertain, if possible, the real state of things by experiment. I introduced into a vein of a living horse a short glass tube open at both ends, containing a piece of silver wire in which was mounted a

[15] Vide the Croonian Lecture on the Coagulation of the Blood, Proceedings of the Royal Society, 1863.

[16] Regarding the corpuscular elements of the blood which are concerned in supplying to the plasma the materials necessary for the formation of the fibrin and the chemical interactions of those substances various important researches have since been conducted in which I have had no share.

[17] I once ascertained the coagulability of a drop of clear fluid which had exuded from a recent contused wound by drawing the point of a needle through it, to which it yielded threads of fibrin.

[18] It has been shown of late by Professor Hayecraft that an indifferent liquid, such as liquid paraffin, has a similar negative behaviour in relation to coagulation, so that by proper management blood may be kept fluid in a vessel of ordinary solid matter smeared with that substance.

little bit of calico, which I thought likely to give rise slowly to putrefactive change, shutting off the portion of vein concerned from the general circulation by means of ligature. After the lapse of some days I removed the venous compartment and found that the blood in it had undergone very remarkable changes. The limits of this lecture (which have been already too widely extended) make it impossible for me to enter into details, as I had hoped to have done, regarding the researches of which this was the commencement. I must content myself with stating the conclusion to which I was led at the time I am speaking of, and which was confirmed by later investigations—viz., that the introduction of septic material into a vein may give rise to the rapid development of large nucleated cells which, growing at the expense of the original constituents of the coagulum, convert it entirely into a thick yellow liquid. The pus so formed contains corpuscles which, like those which I sketched in the early case at University College, are not pus corpuscles in the ordinary sense, or leucocytes, but the variously sized more or less granular nuclei of the large cells the pellucid bodies of which constitute the so-called *liquor puris*. Into the question of the origin of these rapidly proliferating cells I must not enter. This process of genuine suppuration of the blood-clot removed all the difficulties which I had felt in interpreting the post-mortem appearances in pyæmia and also its clinical features. Having become familiar with the appearances of these cells in suppurating coagula I was able to recognise them in acute abscesses in the human subject and to demonstrate them to others by mixing carmine with the pus, so as to render clearly defined the limits of the pellucid bodies of the cells which otherwise would have been regarded as *liquor puris*.

I am, of course, aware of the great importance of the emigration of leucocytes discovered by Cohnheim and rendered immeasurably more interesting by Metchnikoff's observation of their phagocytic powers, and I know that collections of pus have often such an origin. But I am quite satisfied that this is not the exclusive mode of pus formation, and that it is often produced by the proliferation of cells, as was first taught by my illustrious predecessor in this chair of two years ago (Professor Virchow) in the "Cellular Pathologie."

While these investigations into the nature of pyæmia were proceeding I was doing my utmost against that deadly scourge. Professor Polli of Milan having recommended the internal administration of sulphite of potash on account of its anti-putrescent properties I gave that drug a very full trial as a prophylactic. I have notes of a case in 1864 in which after amputating the thigh for disease of the knee-joint, I gave ten grains of the sulphite every two hours from the time of the amputation; and when on the sixth day an ominous rigor occurred, I doubled the frequency of the administration. Death, however, took place nevertheless, and this was by no means my only experience of such disappointment. At the same time I did my best by local measures to diminish the risk of communicating contagion from one wound to another. I freely employed antiseptic washes, and I had on the tables of my wards piles of clean towels to be used for drying my hands and those of my assistants after washing them, as I insisted should invariably be done in passing from one dressing to another. But all my efforts proved abortive; as I could hardly wonder when I believed, with chemists generally, that putrefaction was caused by the oxygen of the air. It will thus be seen that I was prepared to welcome Pasteur's demonstration that putrefaction, like other true fermentations, is caused by microbes growing in the putrescible substance. Thus was presented a new problem: not to exclude oxygen from wounds, which was impossible, but to protect them from the living causes of decomposition by means which should act with as little disturbance of the tissues as is consistent with the attainment of this essential object. It has been since shown that putrefaction, though a most serious cause of mischief in wounds, is not its only cause. In other words, it has been proved that there are microbes which produce poisons that do not occasion unpleasant smell. But the principle that first guided me still retains, I believe, its full value, and the endeavour to apply that principle so as to ensure the greatest safety with the least attendant disadvantage has been my chief life-work.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.—The Entrance Scholarship in Natural Science (£150) was awarded to Mr. George Young Worrall; and the University Scholarship in Anatomy and Physiology (£50) was awarded to Mr. Walter L. Harnett, B.A.Cantab.

An Introductory Address

ON

SCIENCE AND PRACTICE.

Delivered at the Opening of the Winter Session at University College, London, on Oct. 1st, 1900,

BY GEORGE VIVIAN POORE, M.D.,
F.R.C.P. LOND.,
PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE.

GENTLEMEN,—It is 19 years since I last had the honour of delivering the introductory address to the students of the Faculty of Medicine in this college. Since October, 1881, inevitable changes have taken place. Many of those who were then our chiefs are now no more; others have retired from the labours of professorial work; their places have been supplied, let us hope, by good men and true, all of them anxious to maintain the high traditions of this college. In 1881 some of my colleagues were beginning to talk of reconstituting the University of London. That reconstitution has now taken place. The headquarters of the university have been removed from the City of Westminster to the newly-incorporated town of Kensington, and all the medical schools in London have become constituent colleges thereof. Since 1881 the Universities of Oxford, Cambridge, and Durham, as well as the Victoria University at Manchester, have made, and are making, ever-increasing efforts to meet the needs of the medical student. In connexion with the new University of Wales a medical school has been founded in the flourishing town of Cardiff, and the present year has witnessed the foundation of the University of Birmingham, which, under the guidance of the Right Honourable Joseph Chamberlain and Professor Oliver Lodge, both of them former students of this college, may reasonably be expected to attain a large measure of success. I believe that competition is the very essence of progress and that the largely increased competition in the matter of medical education is full of good omen for the future of medicine in this country. So long as the competitions be really free there is nothing to fear. So long as men be really free to back their own judgment in the matter of gifts and endowments, and so long as the medical student be free to choose the schools and the teachers to which he will take his educational fees, there can be no doubt that the law of the survival of the fittest will continue to exert its beneficent influence and that progress will result.

I purpose to-day to address myself to those of you who are about to commence the study of medicine proper. Your studies hitherto in chemistry, anatomy, and physiology, studies which are a necessary preliminary to the study of medicine, have been pursued by the aid of dead material and by methods which are largely artificial—methods many of which have no counterpart as far as we can tell in Nature. You have learnt to recognise and to name the various parts of the human body and to understand the relation which the various organs hold to each other. You have learnt how the chemist, by methods of his own, tears organic matter into fragments and designates the bits by dodekasyllables, and represents them by mystic formulæ which sometimes perhaps illustrate his own imaginings and show his descent from the astrologer and the alchymist. You have learnt by methods which are largely artificial to recognise many of the cellular elements which go to the building of our complex bodies and by means of anæsthetics and sundry artifices you have had an occasional glimpse of vital movements—a momentary and imperfect glance of the fringe of Nature's robe. Your time hitherto has been largely spent in a valley of dry bones and in the laboratory of a crematorium, and many of you who to-day begin the study of medicine are doubtless asking, "Shall these dry bones live?"

The passing from the study of the dead to the study of the living constitutes the greatest epoch in the life of a medical student, and you will readily believe me when I say that the study of the living demands infinite patience and great humbleness of mind. I have alluded to the fact that the methods of the laboratory are largely artificial. We are in necessary doubt as to the resemblance between Nature's

methods and man's methods, and how far he who works in a laboratory merits the name of artificialist rather than that of naturalist. It is necessary to say this because we have to follow Nature. We must not mistake our methods for her methods. We physicians have to find out what is man's true relation to his surroundings in this world. We are powerless to alter the course of Nature, but we may, perhaps, persuade our fellow men to reform their conduct. Before, however, we begin to persuade, still more before we venture to compel, we must be sure of our ground. We must constantly check the advances of the laboratories by the observations of the broad facts of Nature. Science in its narrow sense must go hand in hand with practice, each must be respectful to the other, like symbiotic organisms living together for mutual benefit. A very dangerous person in this world is the quasi-monocular Polypheme who holds one eye over an immersion lens and keeps the other shut. He becomes doubly dangerous if he be the holder of a public position, which may give to his utterances a fictitious value sufficient, perhaps, to tempt the politician to earn a bubble reputation by hasty legislation, than which there is no more effectual bar to scientific progress.

> "Man, proud man,
> Drest in a little brief authority,
> Most ignorant of what he's most assured,
> * * * * *
> Plays such fantastic tricks before high Heaven
> As make the angels weep."

Those of you who are passing from the laboratories to the hospital are equipped for your work in a manner which enables you to observe with completeness and to record with accuracy. You may be disappointed in finding that no inconsiderable part of the knowledge which you have hitherto acquired is of little practical use to you in the wards, or at least you may fail to see the bearing which it has upon the treatment of the sick. Be not dismayed; the correlation of knowledge is infinite. We cannot tell from hour to hour what may prove to be the practical bearings of the most recondite discoveries of the laboratory. The so-called practical man who is ever asking the question "*Cui bono?*" is certainly not the one by whom advances in knowledge are likely to be made. If you find that the recording of cases in the hospital has to be done by clerks and dressers instead of by clockwork and drums driven by an electric motor, do not for this or similar reasons rush to the conclusion that you have left really scientific work behind you. It is true that scientific work cannot be done as rapidly in a hospital as in a laboratory and that in a hospital you cannot control the circumstances and conditions of your work as you can in a laboratory. The collection of facts often extends over years and those who are in a hurry to make a so-called scientific reputation should remain in their laboratories. The power of independent observation is a gift which is given to few. The true naturalist—such as Harvey, "Parson" Hales, John Hunter, Gilbert White, Charles Darwin, and Pasteur—would seem, like the poet, to be born and not made, and generally educates himself by methods of his own. We may reasonably hope, however, that the extension of scientific teaching is calculated to bring the unconscious genius within sight of the mental pabulum for which he has, unknown to himself, an inborn appetite.

May I venture to allude to some of the work which has been accomplished by the patient observation of physicians? First amongst these is the solution by Harvey of the difficult problem of the circulation. This was the result of many years of incessant labour and the observation of every fact which by any possibility could assist him. He is credited with having begun to teach the doctrine at least 12 years before he published it in its final form. He was in no hurry, he had no petty ambitions with regard to priority, and finally he left the question completely settled, so that in the 272 years which have since elapsed physiologists have been able neither to add to nor detract from the doctrine that remains pretty much as Harvey left it.

Again, the discovery of the cause of the endemial colic of Devonshire by Sir George Baker deserves ungrudging recognition. Baker's essay was published in 1767 and it is very interesting to contrast his admirably arranged and thoroughly scientific discourse with the essays on the same subject which had preceded it. I need not follow Sir George Baker in his collection of facts and his close reasoning upon the facts collected. Having shown that in all human probability the cause of the colic was to be found in the lead fittings of the cider presses, he finally had recourse to Dr. Saunders, "an ingenious gentleman who practised chymistry" and who extracted a tangible quantity of lead from a dozen bottles of Devonshire cider. No better instance can be found of the happy association of the laboratory worker and the clinical physician. I may, perhaps, remind you that Baker's discovery, although limited to a disease which was peculiar to certain districts only of this country, was in reality very far-reaching, for there were endemial colics in many other parts of the world, such as the colic of Poitou and the "dry belly-ache" of the West Indies and Central America, all of which were ultimately traced to lead as a cause. Lead colic was, prior to Baker's discovery, a very widespread malady and is now happily very rare.

Scientific in its best sense was the discovery made by Ballard, then medical officer of health of Islington, that certain pestilences—enteric fever, scarlet fever, and diphtheria, which hitherto were supposed to "stalk in darkness"—walked occasionally with the milkman. This great discovery, following on that made by Snow and Budd that cholera and enteric fever could be conveyed by water, encouraged the pathologist to renewed efforts, and it was not long before the "ingenious gentlemen who practise bacteriology" were able to demonstrate to the clinicians that the true causes of some of these diseases were recognisable by the eye and that their habits were such as to fit them peculiarly for transit by water and by fluids mixed with water. The great increase of knowledge which has taken place with regard to infective disease in the last half of this expiring century has been due to the coöperation of the laboratory worker and the clinician. Let us give to Pasteur and Koch their due mead of praise, but do not let us forget the credit which is due to Ballard, Snow, and Lister.

The spread of infective disease is, in the opinion of some of our more enthusiastic and less experienced laboratory workers, to be accounted for solely by the existence of a microbe, and having discovered the microbe they are anxious to push the fact to what they are pleased to call its logical conclusion. In relation to the bacillus tuberculosis we hear propositions for killing 80 per cent. of our cows, for making expectoration a misdemeanour punishable by fine at so much per nummulus, for declaring it felony to drink raw milk, and for converting a dairyman into a sort of ticket-of-leave man. No room is to be left for the exercise of private judgment, albeit that cliniciars are feeling that the cause of the spread of infective diseases is still enveloped in mystery and that notwithstanding the light which recent discoveries have given us the unknown is certainly greater than the known. The wise laboratory worker will always be chary of moving without the support of the clinician. One great mistake has already been made in Germany in relation to tuberculosis. This should serve as a warning. As a nation we have a reputation for level-headed common-sense, and I feel sure that if in these matters we "legislate in haste" we shall "repent at leisure."

The labours of Edward Jenner in relation to the establishment of vaccination were scientific in the best sense. It is only recently that other facts which seem to bear some analogy to vaccination have received attention at the hands of Pasteur, Haffkine, Wright, Fraser, and others, and we have learnt much, but have much more to learn as to the causes of immunity. Practice in this matter has been ahead of theory. The scientific use of theories and the discovery of far-reaching principles gives an impetus to practice and endows it with a degree of certainty and security which it could not possess without it.

Many an antiseptic process has been practised in our kitchens from time immemorial. The careful housewife who long since successfully preserved fruit by bottling was anticipating Pasteur. Pasteur has shown us the principles which underlie the process, and has therefore given such an impetus to the art of food preservation that we seem almost to be in danger of famine in relation to food which is really fresh. This is a most important matter, for the practical man is beginning to feel that stale food is no true substitute for fresh food, all chemical analysis to the contrary notwithstanding.

The frequency with which practice has anticipated theory and a knowledge of principles is most interesting. The "unbusied shepherd stretched beneath the hawthorn" munching bread and cheese and a raw onion is doing that which his ancestors learnt centuries ago by the light of Nature and the craving of a natural appetite. The physiological

chemist arrives somewhat late upon the scene to tell him that he has selected for his meal a perfectly correct mixture of proteids, fats, carbohydrates, antiscorbutics, and antiseptics and Corin stares as M. Jourdain stared on learning that his conversation consisted of prose. If, however, the physiologist were to suggest a change of diet in favour of a more portable assortment of dried proteid, starch, oleomargarine, and allyl compounds, the best products of his laboratory, he would probably attribute the yokel's refusal to impenetrable stupidity. The physiologist unfortunately can tell the shepherd nothing concerning those natural appetites which are the mainsprings of every human action.

In Stanley's "Darkest Africa" I find a very interesting example of practice ahead of theory. In the second volume the author has some valuable observations on malaria, among which I find the following: "Emin Pasha informed me that he always took a mosquito curtain with him as he believed it was an excellent protection against miasmatic exhalations." Emin's practice was right (a practice, I am told, not unknown in India), albeit that he seemed to have no knowledge that the "miasmatic exhalation" against which he was protected was nothing more or less than a mosquito. It is needless to point out how recent discoveries have supported Emin's practice. We must not lightly abandon established practices at the bidding of each unfledged theory. Theory and practice must go hand in hand, each working for the correction and support of the other, if the art of medicine is really to progress and the profession to retain its legitimate hold upon the public.

THE NEW HOSPITAL.

The council of this college soon learnt that a medical school without a hospital was not complete, and that for the education of the medical practitioner science and practice must go hand in hand. The old hospital, so soon to disappear, was opened in 1833, and in it an illustrious line of physicians and surgeons have done work which has redounded to the credit of the institution and have sent out students whose subsequent careers have shown how well they were taught and how diligently they worked. It is now 20 years since the old hospital was condemned as unfitted for its purposes by Dr. de Chaumont, the worthy successor of Parkes in the Chair of Hygiene at Netley. Sir Francis Goldsmid came forward and made a noble offer to help us to rebuild it—an offer which the council, after due deliberation, refused, notwithstanding that the general committee and the then staff of the hospital were unanimous that rebuilding was necessary. Thus it has come about that we as a medical school have been handicapped in these days of keen competition by being obliged to carry on the most important part of our teaching in a hospital which, when compared with recent hospitals, was obsolete and squalid. Possibly our ill-fortune has been a blessing in disguise, because the construction of the much-needed new hospital has now been undertaken in a spirit of unbounded generosity and philanthropy by Sir Blundell Maple, whose name will deservedly be honoured as that of Thomas Guy is honoured, and whose noble hospital, the form of which is due to the genius of Alfred Waterhouse, bids fair to be one of the chief ornaments of the new borough of St. Pancras. As we are about to take possession of the central (administrative) block and one of the wings of the new hospital it will not be out of place if I say a few words about it.

The new hospital has about double the area of the old hospital and occupies the entire "island" bounded by University-street, Huntly-street, Grafton-street, and Gower-street. Not only is it surrounded by streets, but it faces the college green, and considering that it is necessarily placed near the centre of a densely crowded city it may be said to occupy a site which is exceptionally good in relation to light and air. Nearly the whole of the area will be covered by a noble basement 15 feet in height, rising six feet above the pavement and lighted by large windows and skylights. In this basement will be placed the out-patient departments, baths, offices, store-rooms, &c. The ventilation of this basement has received special attention and it will be completely cut off from the central and subsidiary staircases and lift shafts which communicate with the superstructure. The wards have an amount of floor space per bed greater, I believe, than is to be found in any other hospital. This is most important as conducing to purity of atmosphere and enabling the individual patient to be easily screened off when necessary—a necessity which for one reason or another is of frequent occurrence. In a teaching hospital like ours large floor space is required for the accommodation of students. The wards are amply lighted by windows on both sides and it is one of the advantages of the cruciform ground plan which Mr. Waterhouse has adopted that the majority of the ward windows command a view which is singularly unobstructed because there are no buildings which are opposite and parallel to them. The new operating theatres are highly finished and are arranged and fitted after the best models to be found either in this country or the continent. In them, as in the rest of the hospital, light and cleanliness have ever been in the mind of the donor, the architect, and the medical staff, whose opinions at all times have received the most careful consideration at the hands of the hospital committee and the building committee.

We have not been unmindful that science and practice must go hand in hand. If medicine is to advance morbid products must be minutely studied by all the methods which are available. A novel feature of the new hospital is the range of rooms on the top floor devoted to the chemical, microscopical, and bacteriological study of morbid products and secretions. These investigations often give a certainty to diagnosis which a few years ago was hardly dreamt of, and it must be remembered that upon accuracy of diagnosis depends to a large extent the efficacy of treatment. It may, I think, be confidently said that in no hospital will the latest advances of pure science be more promptly available for the relief of the suffering poor than in the palatial establishment which Sir Blundell Maple is building for us. We are entering at once into possession of three new wards containing 72 beds, new administrative offices, new baths, new operating theatres, and new scientific workrooms for the purposes of research and diagnosis. The nurses' wing is rapidly approaching completion and when this is finished we confidently expect that the accommodation provided for our resident medical staff, for our matron, and for nurses and servants, will compare favourably with that of any other hospital. It need hardly be said how essential it is that young men and women engaged in the arduous duties of attendance on the sick should be housed in the most wholesome manner possible. There can be no doubt that the present and future students of University College will enjoy facilities for the practical study of disease such as were undreamt-of a few generations back.

LECTURING.

The medical student differs from other students in this, that his course of study is largely controlled by the General Medical Council and the corporations. Seeing that mere examination is a very fallible test of knowledge, and seeing that the public naturally want some guarantee of adequate education from those to whom they entrust their lives, the medical student is compelled to produce proof that he has at least dwelt for a season beside those springs of knowledge from which he may have sipped occasionally when so inclined. He is *compelled*, for example, to produce evidence that he has attended certain lectures, and you will only think it natural for me to make some special allusion to the course of lectures on the Principles and Practice of Medicine which (*inter alia*) he is bound to attend. Formerly he was compelled to attend two courses of such lectures; now the examining boards are contented with one course. The medical student is still a very much lectured individual. He has very little time to pick up crumbs of knowledge for himself, but his intellectual pabulum is administered at very frequent intervals, often without regard to his appetite or his powers of assimilation.

There is an idea that mere lecturing is of little use, that practical work in the laboratory is the only true complement of practical work in the wards, and that the printing press has rendered lecturing unnecessary. There is a measure of truth in this, and therefore it is almost incumbent upon me to offer some apology for venturing to stand before you as a professor whose duty it is to give lectures on medicine not at the bedside only but in a class-room. Perhaps I have been tempted to take upon me the duties of professor of medicine by the recollection of my student days and by the consciousness that in listening to the systematic lectures on medicine of my day I spent time more profitably than I have ever done before or since and obtained a knowledge of medicine which I found in no text-book. In listening to those lectures one's enthusiasm was roused, and one went from the lecture-room to the ward with intenser interest and with greater knowledge of how to observe

and what to look for. Not many students even of this college had the good fortune to attend the systematic lectures on medicine by William Jenner, because his tenure of the chair extended only to four or five sessions. Sir William Jenner was the greatest lecturer I have ever heard. He appeared to me to have more insight at the bedside than any other physician I have ever met, and assuredly he was the strongest personality with whom I have ever had dealings in this world. As to Jenner's lectures I have never heard but one opinion. That is interesting, because a lecturer, even a good one, is not always in sympathy with all the members of his audience, and you will find that among students there are widely different opinions as to the merits of their teachers. Jenner taught from the fulness of his personal knowledge and largely used the vivid impressions made upon him by cases which he had seen for illuminating and illustrating the principles of medicine. When he suddenly interrupted the thread of his discourse with the words, "I saw a case last week which illustrates this," there followed an interesting recital which was vivid beyond belief and left itself ineradicably fixed on the tablets of the memory. Jenner never talked about things which he did not understand; he was a physician in whom there was little of the metaphysician. He knew that intricate arguments on doubtful points, arguments often difficult to follow even by the best of his audience, were out of place in the lecture-room. There was no attempt at oratory, no wasting of the students' time with flowers of rhetoric, no pretentious display of learning, no pedantry, no "side." His style was that of an honest man, brimful of learning, spurred by enthusiasm for his subject, and genuinely anxious to impart knowledge. His manner was his own, at once simple and emphatic. He was a man of transcendent gifts and willingly gave of his best even to the least intelligent. Sharpey, who lectured on physiology, was also an expounder of no common merit who devoted much of his time to lecturing and whose lectures, like those of Jenner, were a recurring pleasure. The lectures of Ellis, the professor of anatomy, were highly esteemed by many. To me they proved too soothing even at 9 A.M. He fed us, as it were, on a flavourless gruel of uniform quality which, though theoretically nutritious, proved unappetising to some of us. Two, among the other courses of lectures which I attended, were thoroughly bad, mere incoherent and incomprehensible drivel. I have used the word "attended," but I will ask you to interpret this word in a "schedule" sense.

It is not always the man with the most knowledge and the greatest intellect who makes the best lecturer. Some of our greatest men have had very little power of exposition. A notable instance of this was Professor Thomas Graham of this college who became Master of the Mint. He was the greatest chemist of his age and the worst lecturer conceivable. Such a man—and I take him as a type—is far better employed in research than in lecturing. The laboratory, not the theatre, is his proper sphere of action.

Lecturing is not reading. The man who keeps his nose on a manuscript while his audience take a nap might well be replaced by a phonograph with a text-book in its magazine. The functions of a lecturer are different from those of a text-book. The lecturer has power of selecting his material and he must be able to keep in touch with his audience. He knows at once when his audience are interested and when they are bored. A lecturer who fails to maintain order in his class has probably mistaken his vocation. The student who pays no attention and who comes to lectures on compulsion is an unmitigated nuisance.

I should not have assumed the duties of the chair of medicine unless I were buoyed by the hope of being useful to those of you who are commencing the study of medicine proper and who, while attending my course, will be mainly occupied in filling the junior clinical appointments. In a former address I took occasion to remark that man, who to our unaided vision appears to be at most some six feet by two, is, when viewed by the higher powers of the microscope, about as tall as Mont Blanc and two miles wide across the shoulders. Medical studies have necessarily enlarged with the virtual enlargement of the subject of them, and so it has come about that specialism in medicine is very highly developed—perhaps morbidly hypertrophied. This is inevitable; but a student must generalise before he specialises. As an examiner in medicine of some experience I have noted that students often have a most imperfect grasp of elementary principles.

Just as it is the business of the professor of anatomy to deal with the entire framework of the body, so it is, I conceive, the duty of the professor of medicine to endeavour to give the student a comprehensive glance of the entire field. If the young student be too early given over to the teaching of specialists his knowledge is apt to be scrappy and he obtains an acquaintance with medicine which may be compared to that which we may suppose the aphis has of the rosebush on which it feeds. The young student needs instruction as to the proportionate importance of different subjects. He needs to know the common things, and his tendency to run after medical rarities to the neglect of more important matters must be checked rather than encouraged.

Some of the modern text-books written by specialists are often misleading to the student, because diseases which are so rare that an ordinary practitioner may never encounter a single case are treated at inordinate length. I was lately dipping into a work in which the diseases of the skin were dealt with by no fewer than 15 different authors. The knowledge, the half-knowledge, and the no-knowledge of these gentlemen had been elegantly rendered in the dermese language and set before the reader, but the word "itch" did not appear in the index. The child playing with a Noah's ark naively remarked that the beetle was as broad in the back as the elephant and the same criticism may be made on some of our modern treatises, which are apt to mislead a beginner as to the relative importance of different diseases.

I trust that it may be my privilege to be of some use to the beginners of medicine and with the aid of the vast amount of material which is ready to our hand in the museum and the hospital to give a solid foundation and scaffolding upon which you may securely build hereafter, as your knowledge and experience increase.

ENDOWED LECTURES.

One of the results of the reconstitution of the University of London may be a diminution in the number of lecturers and an increase in the size of the classes. Thus it will be possible for a man to give some of his best energies to teaching without suffering from comparative starvation. At present few lecturers earn a "living wage." It must be remembered, however, that lecturing is very hard work. Speaking with no little experience I should say that to really hold the attention of an audience for an hour makes very great demands upon one's store of energy. A man who teaches successfully and lectures day after day may well be excused if his output of what is called original work is not very great. Professor Sharpey was one of the most learned physiologists of his time and yet his fame in the field of discovery is small, and one reason for this is, I believe, due to the fact that his best energies were given to teaching. Not only did he lecture six days a week to large audiences in this college but his advice was sought far and wide, and when sought was freely given to all workers in the vast field of physiology.

We hear a great deal about the endowment of research, and if such endowments should relieve original workers from the drudgery of lecturing, for which possibly they have no great love or aptitude, there can be no doubt that such endowments would advance knowledge and prove a benefit to the student in many ways. The endowment of lectureships, especially of lectureships which students are compelled to attend, is of very doubtful advantage to the student. Dr. Johnson attributed the failure of Gresham College to the fact that the lectureships were endowed while the students paid no fees. Such an arrangement was not calculated to bring out the energies of the professor, and if by chance a professor without the necessary aptitude were appointed to a chair failure and boredom were the results. Every professor needs the stimulus of competition and his emoluments ought mainly to depend upon the fees which are freely paid by students who feel that he can be useful to them. In very few cases ought the endowments of a chair to exceed the amount of fees contributed by students. The best form of endowment would be a provision for old age, which should bear some relation not only to length of service but also to the average earnings in the five years preceding retirement. Thus an inducement would be given to professors whose powers are failing to make room for younger men. Doubtless many of you have heard the story of Gil Blas and the Archbishop of Grenada. It seems *apropos*. Gil Blas, who occupied the post of secretary to the archbishop, was one day thus addressed by the prelate: "My chief pleasure consists in preaching. ..... The honour of being reckoned a perfect

orator has charmed my imagination ..... but I would avoid the fault of good authors who write too long. ..... Wherefore, my good Gil Blas, whenever thou shalt perceive my pen smack of old age and my genius flag don't fail to advertise me of it." A few months later the archbishop had an attack of apoplexy, from which he recovered sufficiently to enable him to mount again his pulpit steps, but the fire of his genius was extinct and his congregation said to one another, "This sermon smells strong of the apoplexy." Gil Blas, faithful to his duty, broke the sad intelligence to his grace, but soon found that it was impossible to appease an incensed author who had been accustomed to hear himself praised. "Go," said the Archbishop as he thrust Gil Blas from his closet; "may Heaven conduct you; I wish you all manner of prosperity and a little more taste." If lecturers and professors are mainly dependent on their earnings there will be no need of any Gil Blas to run the risk of tendering unpalatable advice. On the other hand, the man who has successfully given his best energies to teaching ought to be under no apprehension as to his sustenance in his declining years. Open competition with a fair field is the surest protection against discourses which smell of apoplexy, a protection to which students who are compelled to attend lectures have an undoubted right.

An Introductory Address

ON

THE FUTURE OF THE MEDICAL STUDENT.

Delivered at the Opening of the Winter Session at St. Mary's Hospital on Oct. 1st, 1900,

BY H. STANSFIELD COLLIER, F.R.C.S. ENG.,

SURGEON TO OUT-PATIENTS, ST. MARY'S HOSPITAL; ASSISTANT SURGEON TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

LADIES AND GENTLEMEN,—My colleagues have committed to my care the function of bidding welcome to old and new students at the beginning of this winter's work. We are glad to see you, we look forward to a closer acquaintance with you, since a good deal of the brightness of our lives is reflected from the cheerfulness and enthusiasm of your youth; and you are necessary to us, for without you the work of the great charity which we serve could not possibly be satisfactorily done. A short time ago I was in conversation with a gentleman from another country who had been diligently reading a new and unpleasant romance of war from the pen of a great authority on the subject of horse breeding. Dealing with this romance the gentleman said so many things that seemed to be true, so many things more than seemed to be true, and so many things that were less than honest, that he made me visibly uncomfortable, and, being polite, he continued: "And yet your Government appears to manage the teaching hospitals of your metropolis tolerably well." I explained to him that the hospitals were maintained by the bounty of the charitable and were under no immediate supervision of the Government. "Is it possible!" he said. "But is there no State department to look after the maintenance of your medical schools?" "None," I said. "But pardon me," he asked, "permit me to inquire, your salaries, by whom are they paid?" "By the students," I said; "but we are not entirely dependent upon school fees, we practise our profession outside." "For you, yes; but does not the State pay your science teachers?" "No," I said; "the students pay." "Ah," he ejaculated, "how rich your students must be." To be quite frank with you, here is shown another reason that we welcome you.

The fact that medical education in this kingdom is independent of State aid is one of the bulwarks of the dignity of the profession of medicine. The primary purpose of our hospitals is the relief of the sufferings of the poor. The necessary conditions and facilities for medical education are a by-product in the process of transforming the bounty of the charitable into comfort, hope, and health for the unhappy, and this by-product uses up not one grain of the raw metal and adds greatly to the amount of the output. Mr. Samuel Lane and the other founders of this hospital, those who have since added to it and those who have for so long striven to build a new wing, have had compassion, not only upon the sick child and injured man of Paddington, but upon humanity everywhere, for the good which you by the knowledge acquired here will be able to do for men will be spread widely, even as far as the most distant battle-field and plague-stricken city.

An old custom has placed you at my mercy for the next 30 minutes or so in order that the cup of counsel may be offered to you and that a trial may be made of your patience—a quality necessary for your success. For your encouragement I may tell you that you are happier than your fathers were in that this is the only written discourse to which you will be subjected. Let it comfort you that your teachers are doomed to suffer with you. Let my first advice to the newcomers be this—that you hold fast to the good counsel which you have received during the last few days from your parents and friends. There was more to strengthen you for the battle of life in that last hand-grasp of your father than you will find in all the addresses you will ever listen to. No words will help you as much as those which your mother breathed when you parted from her. Keep them ever in remembrance. Each of you has conceived a picture of his future as a student of medicine in bright or sober colours, according to his temperament, probably cheerful, simple, and perhaps with little meaning in it; but as the future becomes the present the visionary picture fades, and in its place is a real and totally different picture, beautiful or ugly, as you shall paint it, but always of great significance and never without light and shadow. Do not work only when the sun shines. Let no discouraging circumstance make you relax your efforts. Remember that some of the best work ever done has appeared for the time to be unfruitful, and that no one can always appreciate his progress. Real work never yet was a continuous pleasure, enthusiasm must ebb and a sense of duty take its place.

Your energies must at first be devoted entirely to the acquisition and storing of facts; see that they be well arranged and tidily stored. The best student is not necessarily the man who learns most easily, but he who has made it his habit to keep in order the storehouse of his knowledge that the grain of his harvesting be kept from decay. Of course, memory is made up of psychical factors, not possessed in an equal degree by everyone, but none the less it is true that effort and the habit of reflection are the essentials without which the best natural gifts are worthless, and by means of which the least favoured may attain to high proficiency in the art of remembering. But you will not long remain mere collectors of facts; you will soon be able to use them with understanding in the processes of thinking for yourselves—an exercise pleasurable even in the smallest matters. May I read to you some quaint words of John Locke? "He that hawks at larks and sparrows has no less sport, though a much less considerable quarry, than he that flies at nobler game; and he is little acquainted with the understanding who does not know that as it is the most elevated faculty of the soul so it is employed with a greater and more constant delight than any other. Its searches after truth are a sort of hawking and hunting wherein the very pursuit makes a great part of the pleasure. Every step which the mind takes in its progress towards knowledge makes some discovery which is not only new, but the best too, for the time at least. For the understanding, like the eye, judging of objects only by its own sight, cannot but be pleased with what it discovers, having less regret for what has escaped it because it is unknown. Thus he who has raised himself above the alms basket, and not content to live lazily on scraps of begged opinion sets his own thoughts on work to find and follow truth, will (whatever he lights on) not miss the hunter's satisfaction. Every moment of his pursuit will reward his pains with some delight, and he will have reason to think his time not ill spent even when he cannot much boast of any great acquisition." In these words does not Locke discover an excellent spirit in which to strive and to meet in the right way the checks, blank drawings, throwings out and fallings off which are incidental to all work? As your ideas become more complex, and leaving the more sure ground of knowledge you travel towards the unknown, imagination comes to you, to be a help or danger as you use it well or ill—a help if firmly linked with what is known, a snare if uncontrolled.

Two words are often abused by students when they are speaking of one another. They are the words "practical" and "theoretical." "So-and-so is a practical man and So-and-so is theoretical." The former is used as a term of commendation, the latter in a disparaging sense. These terms

must be thoroughly understood or they are dangerous to the young student. In its proper sense, as applied to a student, the word "practical" signifies that he has the faculty of applying knowledge to useful ends and therefore necessitates the premiss that he possesses knowledge. But this word is so often misapplied that the beginner might almost be led to think it is a virtue to shun books and lectures, to turn out to grass his mind, and with a carpenter-like industry to busy only his neuro-muscular system in the more mechanical parts of work. When the word "theoretical" is properly made a term of contempt it is used in a debased sense, having no connexion with theory and signifying simply "not practical." I have not found that the mind of the unpractical man is overburdened with theory or with anything else save dreams and aspirations. The word "theory" in any of its dictionary meanings commands respect—whether it is used in the sense of "an explanation or system of anything" or "an exposition of the principles of a science or art," or as a hypothesis not yet proved or disproved by facts. Using the word in the last sense it is true that a theory is sometimes only a will-o'-the wisp, but at times it is the dawn of a bright new day of knowledge. And here is an instance especially pleasant to all of us. Until very recently the essential cause of rheumatic fever was unknown. It was conjectured to be a micro-organism, but this was not proved, and for the time it was necessary to be content with the germ-theory of this disease. It has been the well-deserved good fortune of two St. Mary's Hospital men, who not very long ago were in your position, to give this theory substance, and their work will, I doubt not, in the coming time pave the way to the overthrow of that monster which has made desolate so many hearths, which has done to death so many of our loved ones.

Let me commend to the beginner the practical study of anatomy. It is in the knowledge of this subject that now and then a modern student compares unfavourably with his predecessors. The reason is not far to be sought. The studies of modern physiology and biology are so fascinating that the student's interest does not relax until the daylight fades and tired nature demands rest and tea. He learns a great deal about anatomy—all those things which can be taught him by the clever word-pictures of teachers and books—he passes anatomical examinations creditably enough, though the impressions on his mind are not vivid and lasting, but one might almost wish that the lecturer and demonstrators were less cunning in the art of teaching, for he relies more upon their words than upon his own handiwork in the dissecting-room; he cultivates the memory disproportionately to the faculty of observation, to the detriment and overburdening of the memory.

Examinations will loom large in your horizon in the next few years. They are not pleasant things, but neither are they intrinsically distressful ordeals. It is the imagination of the student which sometimes makes them so. Some men occupy themselves so with anxiety about approaching examinations, with wishing they may pass, with thinking what they will do if they do or do not pass, that they have no time for that work which can enable them to achieve success, and after failing perhaps they spend a month or two in mourning for themselves and in making an exhaustive review of the shortcomings of examiners. The man who passes an examination brilliantly is to be envied. The man who, having been refused in spite of his best efforts, triumphs over his disappointment, not permitting the weight of it to bend him one hair-breadth from his purpose, is even more to be envied.

To-morrow the librarian will sell many note-books. The penny note-book with its frail binding is the worst bargain; the note-book should be small and neat, and the name and address of the owner should be written in it. It will be required for some time, it must be easily carried about, and it is going to be of considerable value. Each note should be short and should contain the substance of a thought without much elaboration. It is to be used as a cue to reflection and mental repetition, not as a substitute for the text-book. The value of a note is very small unless it is read over and mastered while the connexions and perspectives given by the teacher are fresh in the student's mind. The beginning of each evening's work should be an overhauling, patching up, and mending of the day's notes, and to facilitate this notes should not be crowded together. Some note-books are embellished with names of many authorities. The habit of connecting ideas with their authors is a graceful accomplishment and is believed to produce a "positive emotional state" in the nervous systems of the brotherhood of examiners in physiology. My own efforts in this direction were not without success, for I remember coupling together, as the joint authors of an excellent new piece of work, the great names of Hallam and Brown-Séquard. I can vouch for the emotional state of my examiners who in a kindly manner made it known to me for how many years horses had grazed upon the turf which covers all that is mortal of the once inquisitive Hallam.

The question of choosing the course to be followed in the matter of examinations has, perhaps, not been definitely decided by all of you. It is prudent not to expect, or rely upon, any considerable changes in the relative value of the various qualifications in the immediate future, but to base your choice upon the present conditions. The nature of the qualifications which the beginner is to select must depend upon his purse, his industry, and his ambition. If any one of you is hesitating as to the course to follow in this matter let me urge him to aim at the highest qualifications. No examination is so unreasonably severe as to be beyond the power of an ordinary intellect, nor is the least successful effort without some reward. "All that I strove to be and was not comforts me," said a great man. When you are settled in practice and known by your work you will be sought for and loved and trusted by the public for your personal worth, and it will matter very little whether you are entitled to wear a hood or a red gown. But in the difficult early days of life's march it is a very great advantage to ride under a grand and imposing banner.

However engrossed in his work the good student may be he does not neglect his personal physiology and anatomy but goes in heartily for sports and exercise. The majority of our gold medalists and of our best house surgeons have been keen sportsmen. When to-morrow you begin work in the school remember that you are putting in the foundations of that house which is to last you your life and that upon their thoroughness will depend the value of their more imposing superstructure. Above all things do not devote yourselves too exclusively to any one subject. Be good men "all round." Do not decide upon taking up for your life work any one branch of the profession until you are qualified, and do not imagine that there is not scope for your genius in any subject; that a particular branch of medicine or surgery is limited and that finality has been reached is a belief which time is continually upsetting. Here is a good example. In Erichsen's great work and in the seventh edition published in 1877 we may read: "When we reflect upon the triumphs of the surgeon's art ..... we can scarcely believe otherwise than that little remains for the daring to devise or the skill of the most dexterous to accomplish in the extension of that art in the direction of its operative department, and that the surgeon must in future be content to repeat, though possibly in a modified manner, those operations which have been inaugurated by the genius and perfected by the skill of his predecessors." In that edition there is not mentioned a single operation upon the kidney. And there are no higher and no lower branches of the profession. There are two ranks in the profession. The first includes all those who benefit the world by adding new knowledge; the second rank all of the rest of us who apply old and new knowledge to the immediate needs of mankind.

In the course of your work you will have much to do with the London poor. They are perhaps the most intelligent and interesting poor people in the world. There is nothing picturesque about them, the uncleanness of some of them will shock you, and the respect in which you hold mankind may be in danger of falling. Indeed, if you are sufficiently ignorant of the influence of environment upon the good and bad qualities of man it may be an effort to sympathise thoroughly with all their misfortunes. But look at that poor woman who came in the other day with so many evidences of a miserable life voyage; she is dying and, as you feel her failing pulse, she fumbles for a handkerchief to save your fingers from being offended with the cold sweat of death. That little child upon the operating table for the second time is a common little slum child, but she looks into your face and says, "Kiss me first, doctor," and you suddenly think of your own sister. As you come to know your patients you will see among them much that is heroic—such fortitude and patience and self-denial as you feel yourselves incapable of, and you will not blush to think that they are fellow-men. Medical students have always been the good genii of the hospital patients. The poor of

London are sometimes said not to be appreciative of what is done for them. I do not think this is the case. It is more true that, as a rule, they are not demonstrative. This story was told me yesterday. An old and rare eight-dollar American gold piece was sent as a gift to a hospital. Being an unusual kind of donation inquiries were made and the giver was found to be an old hospital patient. It was a poor woman who was suffering from a incurable disease. The coin had years before been given her by her mother and now, being unable to earn a living and feeling the pinch of poverty, the temptation to sell the coin came upon her, and to resist what seemed to her an impiety she gave her one treasure to that charity which we may be sure she loved and trusted most.

I had reached this point in my discourse and had called to mind other stories and had arranged that each succeeding one should be more pathetic than the last when—and I daresay you are very glad for it—I was interrupted by a call to the hospital. To return home I took a cab. The cabman thrashed the horse. I remonstrated, irritatingly enough, I daresay. The cabman repeated his cruelty. I got out. "'E's such an awkward 'orse," said he, "no one can't do no good with 'im." Now at this stage I ought to have turned on my heel, but foolishly I returned to the charge. It was not met. "Yes, sir, you're quite right, I ain't got no mercy on 'im," admitted the cabman, and I thought I had begun to score. "But, cabman," I said, "if you are so cruel you will surely want a great deal of mercy yourself when you come to die." "I don't know, sir," said he, "as long as it ain't at St. Mary's 'Ospital and under the care of Mr. Collier I might do without." There was something familiar to me in the man's voice, and though the night was dark I thought I recognised one of my oldest and most regular out-patients. His chuckle was hearty and his "good night" was kindly, and I have seen him here since.

Are you to be congratulated upon your choice of a profession? Certainly not, if you only care for riches and power and yourselves; certainly not, if you are a dreaming, ease-loving recluse. Yes, if you be good citizens; yes, if you love mankind and the throb of a full life. But, your minds not being made up, you may say: "Well, but the profession sees so much of the bad side of human nature." True, experience will early rob you of many pleasing illusions, but you will also see more of the good side of humanity than most other people. You will see more of man as he really is, without the disguise—often disfiguring—in which modern civilisation wraps him. "And," you may continue, "one will have to come in contact with all classes of society." Yes, and you will see in each the proofs of man's high destiny. "But is the work of the profession appreciated by the laity?" I think I can give you a good answer. You have read of the great plague of London and how the people fled to Highgate, Hampstead, and Finchley, and the city was for a long time ruined and deserted. And now the same enemy is knocking at our gates. I do not gather from the morning papers that the good people of Glasgow are shutting up their workshops and fleeing to the mountains. The mainstay of the citizens at the present time is not the false trust that plague cannot spread widely in a modern city, but their confidence in that power of defence which medical knowledge alone can give. The plague will not frighten them. All that the townsmen will do will be to pull down and sweep away those nasty relics of times in which the science of preventive medicine was practically unknown and to reward, right well we may be sure, the splendid work which the health officers have done.

And about your prospects? As we face the hill which all of us must climb it must be admitted that it has a rather harsh face and seems to be high and steep, but all of us, I believe, will sooner or later reach a table-land of modest prosperity or, at any rate, contentment. Are there too many men in the profession? From the point of view of suffering humanity are there too many? Are all the sick well cared for? Are there too many workers in the field of research? Is all that is possible being done for the protection of our children from tubercle? Is the stamping out of rabies a quixotic achievement not to be imitated? Is the Royal Army Medical Corps overcrowded? Are none of us overworked? But from the point of view of a livelihood—aye, there's the rub. Let us hope that time—which mends all things—may hurry up in this business.

I have now only to wish you as good a time as I have had. May you meet with as much kindness and forbearance as you have shown me and may this hospital and everyone connected with it become as dear to you as to me. May I, on behalf of the staff and the students, thank you ladies for your presence. We know how important it is that the armour of our young warriors should be buckled on by your hands. It is almost customary, when a surgeon gives a non-technical address, that, in the name of his art, he should pay a tribute to the discoverers of the uses of those great blessings anæsthetics and antiseptics. I would do so and would link with them one more discoverer, Miss Nightingale, who discovered the modern nurse.

Abstracts
OF
INTRODUCTORY ADDRESSES, ETC.,
DELIVERED AT THE
LONDON AND PROVINCIAL MEDICAL SCHOOLS
AT THE
Opening of the Session 1900-1901.

ST. GEORGE'S HOSPITAL.

INTRODUCTORY ADDRESS BY F. G. PENROSE, M.D., F.R.C.P. LOND., PHYSICIAN TO, AND LECTURER ON MEDICINE AT, THE HOSPITAL.

DR. PENROSE began his address by offering a welcome on behalf of his colleagues to those who were joining the school for the first time. He mentioned some of the vacancies which death had caused in the ranks of the governors of the hospital, referring particularly to the Duke of Westminster, Lord Clifden, and Mr. George Shaw-Stewart. Speaking of the changes amongst the teachers in the school Dr. Penrose mentioned especially the elevation of Mr. Warrington Haward to the consulting staff and said how much he would be missed from the active work of the wards and the school. He congratulated Dr. W. S. Lazarus-Barlow, who had resigned the curatorship of the museum, on his appointment to the charge of the clinical laboratories which had recently been opened at the Westminster Hospital. He spoke of the gain to the hospital and school by the appointment of Mr. H. S. Pendlebury as an assistant surgeon. In alluding to the reconstitution of the University of London Dr. Penrose said that it had been recognised for the past 20 years that the original institution was a university in name only, almost its only function being that of an examining body (a work which it had performed admirably), but that it did not in any way fill the position that the university of this metropolis should fill. It might be hoped that, as newly organised, it would become the centre of the highest learning and the best teaching and that it might attract workers in all kinds of research, whilst still maintaining the high standard in its examinations and in the control of education that the old institution had done. He hoped that one good result would be a reduction in the number of examinations which the future student would have to pass in order to obtain his qualifications and degree. He thought that a primary, an intermediate, and a final examination would be quite sufficient to satisfy all necessary requirements. The rest of Dr. Penrose's address was devoted to a consideration of some of the problems of medical education. He said that at the present time, owing to the immense range of the subjects included under the term "medicine"—using the term in its broadest sense—and the minute sub-divisions of the practice into numerous special branches, he thought that the best way was to ensure that students should be thoroughly grounded in the principles and technique of the chief sciences on which medicine and surgery were founded. These he considered to be anatomy, biology, chemistry, and physiology. The importance of a practical acquaintance with two of these sciences—viz., human anatomy and physiology—was already provided for. As there were only two years available for the study of the fundamental sciences the time that could be devoted to biology and chemistry was very limited. Dr. Penrose thought that chemistry, particularly those branches

which were known as physiological and pathological chemistry, were of such importance that he would like every student of medicine to have the opportunity of acquiring as thorough a practical knowledge of these subjects in the laboratory as he had of learning human anatomy in the dissecting-room. In order to make this possible he suggested that three years at least should be allotted to the subjects above-mentioned. He also looked forward to the establishment of a clinical laboratory which would provide men with an opportunity of following up chemical and other problems arising directly out of the work in the wards. Dr. Penrose alluded to the feeling which was held by some people that the subscriptions and donations to a hospital should be used only for the care and treatment of the patients, which feeling, he felt, was worthy of all respect, though he did not entirely agree with it. He quoted some remarks made by Lord Lister at the opening of the new laboratories at the Westminster Hospital in the early part of the summer[1] in support of those who considered that the funds of a charity might legitimately be spent in helping some forms of medical education and research. He thought that the subscribers should know exactly how the hospital funds were expended. He stated his belief that there were many wealthy philanthropic men in the country who would be willing to assist the hospitals and teaching schools by contributing directly to such objects, and he mentioned the munificent gift of Lord Iveagh to the Jenner Institute of Preventive Medicine as an example. Finally, he endeavoured to show that the remarkable advances that had been made in medicine and surgery during the past quarter of a century were due to a combination of work done in the laboratory and in the ward, yet the greatest results had come from the former rather than from the latter.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.

INTRODUCTORY ADDRESS BY MISS L. B. ALDRICH-BLAKE, M.D., M.S. LOND.

MISS ALDRICH-BLAKE said: My most pleasant duty is to welcome, in the name of the London School of Medicine for Women, those students who to-day begin their life here. I chose for the subject of this opening address: Our Common Work, the Preparation for the Practice of the Profession of Medicine.

One great advantage of our profession as a field for our energies is the large number of faculties which may, and the considerable number which must, be cultivated in order that we may be even passable disciples of that science and art. Every good quality, either of intellect or character, can find scope in the daily life of a doctor, and those who have had the best opportunities for judging consider that the influence of character on the career is the greater. We need courage to attack difficulties, energy to overcome them, thoroughness to do our best in everything, and truth—which means accurate thinking as well as right speaking—and we must cultivate these qualities by every possible means. Bacon has said: "Since custome is the principall magistrate of man's life, let men by all means endeavour to obtain good customes. Certainly custome is most perfect when it beginneth in young years." We see that right habits are no less a public duty than a private duty, for Bacon continues: "But if the force of custome simple and separate be great, the force of custome copulate and conjoyned and collegiate is far greater. For there example teacheth, company comforteth, emulation quickeneth, glory raiseth, so as in such places the force of custome is in his exaltation." Therefore, both to the individual and to the school, the formation of right habits is of extreme importance.

A more difficult question is what are right customs in relation to the school, our work and our patients? This school was founded in 1874 and we now find ourselves established in a luxury of housing that is well to bear in mind as a thing to be grateful for. Our gratitude may best be shown by keeping alive in the school that spirit most conducive to good work. Some ancient has said: "What is not good for the hive is not good for the bee." As members of the school and afterwards as members of the medical profession, we can give thought to the whole without danger of swamping our individual interests. The influence of students upon one another is far greater than that which can possibly be exercised by the constituted authorities. It belongs to each one of you to make the spirit of this place worthy of its greater body. The spirit needed is of that nature which looks upon obstacles as things to be overcome. If some measure of public spirit has ruled your school life, medical etiquette, I think you will find, seldom requires of you more than the old maxim, "Do as you would be done by," would demand of any honourable person. "With regard to work," Dr. Arnold has said, "I suppose the desirable feeling to entertain is always to expect to succeed and never to think you have succeeded." Without hope work would, indeed, be a half-hearted sort of thing. Humility is a virtue, and perhaps the surprises of life are less apt to take a pleasant form for those whose estimate of their own worth is great than for those whose estimate is small, but beware of that humility which would paralyse honest effort. "Never to think you have succeeded" is quite as important. In the lives of all great men we cannot fail to be struck with the enormous energy with which they pursue their work, one thing leading to another—an energy which in our small way we ought to exercise, feeling that anything which we have attained is only an opportunity to do something further. You are preparing for a profession in which learning must continue as long as life lasts and for which self-instruction and self-reliance are absolutely essential. As Herbert Spencer has said: "It is not the knowledge stored up as intellectual fat which is of value, but that which has been converted into intellectual muscle." Now, though good teaching is absolutely essential, mere recipients of knowledge do not acquire the power of attacking new subjects on their own account. The difference between being educated and being crammed is that in the former the powers of observation and reflection are developed, whereas in the latter the mind is more passive and the brain is expected to receive an undue quantity of predigested matter to be retained as best it may. The great increase in the facilities for practical work compensates somewhat for the far larger ground which has to be gone over. Your course is accurately mapped out for you, but the liberty of doing or not doing your individual best always remains to you. Learn your anatomy, physiology, &c., not merely on account of examinations, but because your after-work requires that knowledge.

Cultivate by every means in your power habits of patient and accurate observation. A diagnosis does not mean the mere fitting of a disease with its name—what you want is a just view of the whole condition of the patient. Sir James Paget once said that it would be interesting if someone wrote a history, not of discovery but of oversights. He says: "We never pass a month, never a week, without finding observations made, discoveries made by persons at work in the same field that we are, or suppose ourselves to be, at work. And why do we not see these things? Surely, that these persons should have seen them clearly and that a crowd of others should not have observed them at all must be a proof that the crowd was either very careless or very idle, or really it was a proof that observation is very difficult and not to be acquired except by the most careful study and self-discipline." Opportunities for such study are yours if you will but use them. Attend all class examinations, for writing upon a subject shows how vague and indistinct are many impressions which we take for knowledge and attendance at these minor trials cultivates in one that most valuable quality, presence of mind. Do not be too much afraid of making mistakes. If on this account you avoid answering a question you waste a valuable opportunity of getting the correct solution impressed on your mind. Cultivate the habit of rapid reasoning, so that your answer, whether right or wrong, instead of being a mere guess has some real basis in your mind. The two chief sources of mistakes are ignorance and carelessness; if you avoid the latter the former will largely cure itself. Carelessness in work must be to us an unpardonable sin, and thoroughness in its widest sense must be our highest aim. Whatever duties we undertake let us remember that they are ours to fulfil to the best of our ability and that they ought not lightly to be given up because something better presents itself. Experience, valuable as it is, will be found to be dearly bought at the expense of a reputation for reliability.

In the treatment of the patient lies the test of the success of our education and none of you will imagine that treatment begins and ends with the presentation of a suitable

[1] THE LANCET, June 16th, 1900 p. 1747.

prescription. If you are to be as useful as possible you must keep in mind the fact that you have to treat an individual and not a type, and that the wide knowledge which is only to be obtained by real study of human nature will enable you to do this successfully. There is no incompatibility whatever between science and that which one might call wisdom, but both are needed. Remember that your object is to heal. You must never give avoidable pain, either by touch, speech, or manner, and because you will be obliged to do much that must necessarily give pain be the more careful never to do so needlessly. However little a patient may be able to estimate your intellectual and technical attainments any one of them can appreciate your kindness. To be broad-minded, thorough, kind: the saying of it is easy, the doing will last us all our lives.

ROYAL VETERINARY COLLEGE.

INTRODUCTORY ADDRESS BY PROFESSOR JOHN MCFADYEAN, M.B., C.M., F.R.S. EDIN., PROFESSOR OF COMPARATIVE PATHOLOGY AND BACTERIOLOGY AT THE COLLEGE.

AFTER referring to some of the principal events of the preceding session the lecturer observed that the occasion was in one respect a very special one, inasmuch as they stood at the close of the century which embraced almost the whole of the past history of the veterinary profession in Great Britain. From time immemorial man had endeavoured to interfere with the course of disease in the animals which he had domesticated, but the foundation of the oldest European veterinary colleges during the latter half of the eighteenth century was the real birth of veterinary science. 100 years ago the Royal Veterinary College was only in the tenth year of its existence, and since then great changes had come over veterinary opinions and practice. A study of the methods by which error had been eliminated and knowledge increased could not fail to furnish some valuable lessons for the members of the profession at the present day.

Referring in the first place to the growth of knowledge regarding the causes of disease Professor McFadyean instanced the cases of glanders and tuberculosis. At the beginning of the century the fact that glanders was contagious was generally admitted in this country, but it was not admitted that every case arose in that way. Coleman, who was Principal of the College during the first 39 years of the century, believed that the disease was more frequently generated than caught. Such a belief was never justified, and it only appeared to be so because outbreaks of the disease not infrequently occurred in stables into which no horse showing any symptom of glanders had ever been admitted and because it often broke out during or at the end of a voyage among horses that appeared to be perfectly healthy at the time when they were shipped. These were actual facts, of which illustrations continued to occur at the present time, but they did not prove or even make probable the spontaneous origin of glanders. One of the premisses necessary to justify the conclusion had been erroneously assumed to be true—viz., that the apparently healthy horses among which the disease broke out were all free from glanders. When large cargoes of horses were shipped over sea the disease often broke out among them simply because glanders was a very common disease throughout the whole of Europe and because many glandered horses retained for considerable periods the appearance of perfect health. For the elucidation of this latter truth neither genius nor deep insight was necessary. All that was required was systematic careful post-mortem examination, which could not fail to reveal the existence of glanderous lesions in many cases in which the horse showed no symptoms of the disease during life.

Judging from the literature of the time tuberculosis as a disease of the lower animals did not appear to have attracted much attention among veterinary surgeons in this country during the early years of the century, but when it came to be recognised that it was a common disease among cattle they adopted the views then prevalent regarding human consumption, including a firm belief in its inheritance. As recently as 20 years ago the opinion that tuberculosis was an extremely hereditary disease was universal among veterinary surgeons, and it was only within the last decade that the erroneousness of that view had been generally recognised. This belief was shattered (1) by recognition of the fact that contagion was at least one of the modes of origin of the disease, and (2) by careful post-mortem examination of the new-born calves of tuberculous cows. Observations of the latter kind had shown that except in comparatively rare instances the progeny of tuberculous cows came into the world without any trace of the disease in any of their organs, and recognition of the contagious nature of the disease made it almost absurd to ascribe its greater frequency in particular families to congenital transmission. The natural and correct interpretation of the facts was that the greater frequency of tuberculosis among the progeny of those who were themselves visibly affected with the disease was due to the offspring being almost invariably born into a place in which they were afterwards constantly exposed to the risk of infection. These and many other instances emphasised the importance of painstaking investigation along the lines of clinical observation and post-mortem examination. At the same time it was important to notice that the great majority of the discoveries of the century regarding the causes of disease had been made, not by greater assiduity in the collecting of clinical observations or in recording the appearances revealed by post-mortem examination, but by the application of new methods of research in which the use of the microscope, the artificial cultivation of bacteria, and experimentation with animals had played the chief part. It was difficult to apportion to each of these three methods of research the credit that belonged to it, mainly because they had usually been employed in combination. Immense strides in pathology had undoubtedly been made simply by the microscopical examination of diseased tissues, and a large part of their knowledge of the disease-producing bacteria had been acquired independently of experiment on the living animal, but no honest person acquainted with the facts could deny that they now knew much that was of the highest practical importance regarding both human and animal diseases of which they would still have been ignorant had experimentation on living animals been a forbidden method of investigation.

Discoveries which threw new light on the cause and nature of disease necessarily influenced methods of treatment and prevention, and the past century had witnessed great changes in the means adopted to counteract disease. There was no lack of alleged remedies at the beginning of the century, but many methods of treatment in which their forefathers placed much confidence had now been almost entirely discarded. Bleeding was a notable example. There could hardly be a doubt that it killed far more patients than it cured, and the fact that it ever found favour should make them careful in estimating the effect of remedies in their own time. Blistering and firing were still much practised, and it might be said that they had stood the test of the century, but it was perhaps permissible to suggest that the clinical evidence even of a century might not be conclusive in such a question. At the time when every patient, human and equine, was bled and physicked there was no evidence as to the merits of less vigorous treatment, and so at the present day it might with much truth be said that the alleged overwhelming evidence in favour of firing and blistering was no evidence at all. Thousands of horses were fired and blistered (which involved a period of rest); many got well or were improved, and the result was set down to the credit of the counter-irritation. But at the present time no one with any considerable practice dared to treat his sprains, splints, and spavins by simple rest without blistering or firing, and neither the past nor the present furnished the necessary data from which to estimate the therapeutic value of severe counter-irritation.

They were, perhaps, entitled to regard as one of the advances of the century that they were more inclined than their forefathers to credit the sick or wounded animal with greater natural powers of recovery, and a fuller knowledge of pathology had done much to restrict the administration of internal medicines and to emphasise the importance of all that is included under the term "hygiene." They had come to recognise that not a few of the things that were at one time viewed as being themselves the essence of disease were in reality processes of defence or repair and did not require any repression by medication. When the cause of disease had been removed medicinal substances could do little or nothing to hurry nature in the process of repair, and great care should be exercised before saying of any drug that "if it did no good it could do no harm."

ANEURYSM OF THE RENAL ARTERY.

BY HENRY MORRIS,

VICE-PRESIDENT, AND CHAIRMAN OF THE COURT OF EXAMINERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND; SURGEON TO THE MIDDLESEX HOSPITAL.

TRAUMATIC aneurysm is one of the consequences of injury to the pedicle of the kidney, but aneurysms of the renal artery and its branches also occur in man from causes other than injury. They have been met with likewise in the horse. In the human subject, however, renal aneurysms, whether traumatic or spontaneous, are amongst the rarest of all aneurysms. Two varieties are found after injuries: (1) small sacciform aneurysm, the walls of which are formed by some or all the coats of the artery; and (2) large, false aneurysm, the walls of which are composed of the condensed fibrous tissue developed around the extravasated and coagulated blood, and with which the surrounding organs and tissues become more or less firmly matted.

A false aneurysm has in some cases gone on growing for years and has ultimately attained an enormous size, as in the case under my care, which I report further on, and in which the tumour occupied half the abdomen. They develop in three ways—namely: (1) by the giving way of a small, true aneurysm, which may be either of spontaneous or traumatic origin; (2) by the yielding of a thrombus which temporarily closed a ruptured artery; and (3) by the immediate outpouring of blood from a ruptured artery.

A true aneurysm—always apparently of small size—if of traumatic origin may be associated with an extravasation of blood or urine or of blood and urine, both aneurysm and extravasation being the consequences of the same accident. One such case at least is on record (Reeves's). In this case the swelling detected during life was caused by the extravasation of blood and urine around the contused and lacerated kidney; the tumour was what some surgeons would describe as a false hydro-hæmato-nephrosis. The small aneurysm was a post-mortem coincidence and had no bearing on the cause of death, but none the less appears to have been an interesting and rare result of the injury.

A true aneurysm may be associated with a false aneurysm and both may be the direct results of the same accident. Thus, a small sacciform aneurysm may be situated on the renal artery and the artery or one of its branches may be torn across or lacerated further on and there open into the false aneurysmal sac. Such was the condition in Hilton's case.

TRUE ANEURYSM OF TRAUMATIC ORIGIN ASSOCIATED WITH FALSE HYDRO-HÆMATO-NEPHROSIS.

An instance of the sacciform variety was referred to in my book "Surgical Diseases of the Kidney," 1884, as Reeves's case. It is the same case as that published by the late Dr. F. C. Turner.[1] It occurred in a lad, aged 19 years, who was thrown out of a cart on May 13th, 1884. Hæmaturia occurred from the sixth day onwards, being particularly profuse on the twenty-second and twenty-seventh days. There was pain in the right side with vomiting and irregular pyrexia of a hectic type. On June 10th—i.e., on the twenty-eighth day after the injury—a swelling appeared in the right loin and the lad died on June 13th. There were blood and inflammatory lymph in the peritoneal cavity and a hæmatoma in the right loin. The right kidney, which was entirely separated from its capsule, lay in a hæmorrhagic cyst filled up with disintegrated blood-clot; the kidney substance was disorganised except a small portion at the lower pole. The calyces were ulcerated and contained puriform fluid and communicated as did also the renal pelvis with the perinephric cavity. On the posterior surface of this kidney, near the hilum, was a well-defined encapsulated blood-clot of round outline and of the size of a cherry attached to the central branch of the renal artery, about half an inch from the point of division of the arterial trunk. The seventh and eighth ribs were fractured on the right side. There was blood-clot in the bladder and areas of suppuration were found in the cortical portion of the left kidney.

In this case the swelling detected during life was caused by the extravasation of blood and urine around the contused and lacerated kidney—it was what some surgeons would describe as a false hydro-hæmato-nephrosis. The cause of death was the disorganisation of one kidney, the suppurative nephritis of the other, and the peritonitis. The aneurysm was a coincidence in the case, but none the less a very rare and interesting result of the injury.

This and the following are the only cases of small sacciform traumatic aneurysm of which I know. Whether—if the injury to the kidney in these cases had been less severe and the patients had lived—the small aneurysms would have become cured, or remained stationary, or, preserving their true sac-like type, would have increased in size, or would have ultimately ruptured and led to a large false aneurysm, it is impossible to say.

TRUE ANEURYSM OF TRAUMATIC ORIGIN ASSOCIATED WITH FALSE ANEURYSM DUE TO RUPTURE OF THE ARTERY AND NOT OF THE SACCIFORM ANEURYSM.

The following case (referred to in my book) is also an illustration of a true sacciform aneurysm of traumatic origin. A man, aged 21 years, who had been struck by the buffer of an engine, was admitted into Guy's Hospital, under the care of Hilton,[2] on June 20th, 1866. On admission he vomited and complained of great pain in the abdomen just beneath the ribs which was aggravated on the slightest pressure; the next morning the vomiting and pain continued, but he was able to walk to the closet, where he passed both urine and fæces. On the day following the injury the catheter had to be passed and one and a half pints of bloody urine were withdrawn. Some improvement followed on the fourth and fifth days, but on the eighth there was an increased quantity of blood in the urine. From the fourteenth day till his death clots of blood accumulated in the bladder and gave rise to agonising pain in the hypogastrium and at the end of the penis. A dull swelling formed in the left side of the abdomen, tympanites and delirium supervened, and the patient died on the twenty-sixth day. The left kidney was found to be ruptured across the middle and the lower segment was cracked transversely by numerous minute fissures. The left ureter and a branch of the left renal artery, on which was a small recent aneursym, opened into a large cavity surrounding the broken kidney, and was filled with grumous and vilely offensive blood-clot and urine. The renal vein was not injured. In the peritoneum, forming the anterior wall of this cavity, there was a ragged rent in a thin slough, through which offensive bloody serum was found to exude into the peritoneal sac. No positive evidence of peritonitis existed.

In this case though the branch of the renal artery upon which the aneurysm was situated opened into a large space containing blood-clot and urine, it would appear that the small sacciform aneurysm had not yielded and did not itself communicate directly with the false aneurysmal sac.

FALSE ANEURYSM DUE TO THE BURSTING OF A SACCIFORM ANEURYSM.

CASE 1.—An example of a large traumatic false aneurysm originating from a true aneurysm of the left renal artery was published in 1891 by Grüber.[3] The subject was a workman, aged 39 years, who was admitted into the Rochus Hospital on Dec. 14th, 1890, eight months after falling from a height of two metres and striking his back against a box. Great dyspnœa and great pain in the left loin immediately followed the injury and half an hour later his urine contained blood, and blood-clots of indefinite shape were passed during the next two days. For three months he suffered much pain in the loin, but there was no further hæmaturia; then without known cause hæmorrhages recurred on several occasions. On admission there was a tumour in the left hypochondrium which reached downwards into the false pelvis and inwards two fingers' breadth beyond the median line. This tumour was dull on percussion, of a soft solid consistence, smooth in outline, tender on pressure, and non-adherent to the abdominal wall. It did not pulsate and gave no auscultatory sign. Micturition was very frequent and there was hæmaturia which was aggravated by exercise. The symptoms increased and the man became very cachetic and died paraplegic in the beginning of February, 1891. At the post-mortem examination there was found a sac 20 centimetres by 12 centimetres. Where the left renal artery entered this sac it was dilated to the size of a child's fist.

[1] Reeves: THE LANCET, Oct. 4th, 1884, p. 588, and Transactions of the Pathological Society of London, 1885, p. 277.

[2] Guy's Hospital Reports, 1868, third series, vol. xiii., p. 9.

[3] Wiener Medicinische Wochenschrift, 1891, Band xli., p. 1646.

Naked-eye and microscopic examination proved that it was a false aneurysm originating from a true aneurysm of the renal artery.

In this case the history is consistent with the post-mortem appearances: a fall followed by severe pain in the loin and hæmaturia for two days, continuance of pain in the loin, but no other symptoms, for three months; then when the sac yielded, the sudden recurrence of hæmorrhage and the subsequent development of a tumour.

CASE 2.—Oestreich has published[4] a case which he described as a ruptured sacciform aneurysm of the left renal artery, probably traumatic, with chronic endarteritis. It occurred in a woman, aged 50 years, who fell in an unconscious state (apoplectic) on a staircase in February, 1891. Two months afterwards there was hæmorrhage, presumably from the left kidney, which daily became worse. On admission, three months or rather more after the fall, a large tumour was detected in the left renal region and the bladder was distended with a large quantity of clot and fluid blood. Death ensued three days later. At the post-mortem examination a large mass of laminated clot surrounded with layers of fresh blood-clot was found behind the peritoneum around the left kidney and descending colon. It was partly in the parenchyma of the lower end of the kidney and partly in the surrounding tissues, and was in communication with the renal pelvis. The branches of the renal artery were markedly dilated and tortuous.

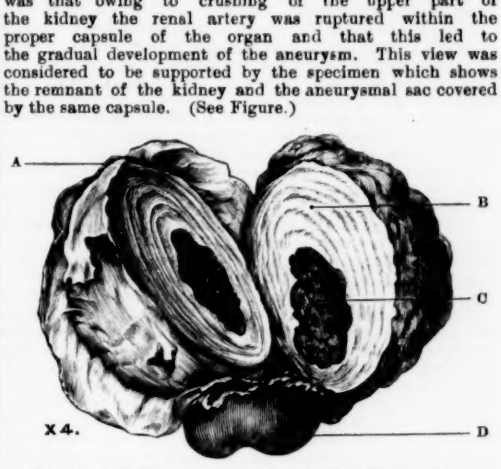
Daniel Nebel[5] describes a case of aneurysm of the aorta involving both renal arteries in a man over 30 years of age who had had his right testicle removed for malignant disease, both the disease of the testicle and the aneurysm being ascribed to a fall from a horse.

CASE 3.—He then goes on to relate briefly a case (probably of this variety) of renal aneurysm in a medical man who, in November, 1717, four years after falling from a horse on to his left side, experienced vehement pain and pulsation on the left side of the abdomen. The case was diagnosed as an aneurysm. At the post-mortem examination a tumour of the size of the head of a child three years old was connected with the left kidney, which itself was flaccid and putrid. This aneurysm had burst into the peritoneum, causing sudden death. A large quantity of blood was found in the peritoneal cavity. The aorta above and below the aneurysm as well as the vena cava and its branches were empty of blood. In the wall of the aneurysm was an opening capable of admitting two fingers, and through this the large amount of blood found in the peritoneum had escaped.

A case of traumatic aneurysm is referred to by Titius (S.C.) in "De renum vitiis: Aneurysmatis arteriæ Renalis sinistræ exemplum, 1798, Vitebergæ." It occurred in the person of a medical man and resulted from a fall from a horse. No details, however, are given beyond the statement that it involved the left renal artery and proved fatal after four years. There seems to be good reason for considering this as merely a reference by Titius to Daniel Nebel's case.

FALSE ANEURYSM DUE TO YIELDING OF A THROMBUS IN A RUPTURED ARTERY.

Julius Hochenegg[6] reported a case of traumatic aneurysm of the right renal artery which is pretty certainly an example of a false aneurysm due to the yielding of a thrombus which for a time closed a rupture of the renal artery.[7] A gardener, aged 51 years, on April 19th, 1889, fell from a ladder a height of three metres, striking his right lumbar region violently against the upright of the ladder. Half an hour later he suffered intense pain in this loin and about an hour after the accident he passed about a quarter of a litre of very bloody urine. In spite of absolute rest, ergotin injections, and the application of cold, bleeding persisted for three days, but on the fourth it stopped. Recovery was slow. A month later copious hæmorrhage lasting a week was followed by very severe cystitis for a fortnight. Two months later still the patient was dismissed as cured. Four months later after great exertion profuse hæmorrhage recurred and continued for three days, during which he lost three litres of blood. Recovery was again slow and this time imperfect. Previously to this time though repeated examinations had been made no tumour was detected; now (seven months after the injury) a tumour, which was elastic, painless, and moveable, and of the size of two fists, was discovered in the right lumbar region. After another three months a further recurrence of hæmaturia occurred for which he rested two months in bed; and again after an interval of rather more than three months hæmorrhage recurred. Subsequent recurrences were more frequent and the patient became very weak and anæmic. In the intervals between the hæmorrhages the urine was normal or showed only a trace of albumin. On palpation a tumour larger than a man's fist was felt in the right hypochondrium. This tumour was somewhat moveable on pressure and change of position, but not with respiration. It had a smooth outline and was thought to pulsate indistinctly, but at the time of operation when the tumour was exposed no pulsation could be detected. Dr. Kunz now diagnosed a lesion of the kidney or a traumatic aneurysm of the renal artery and sent the man to Albert of Vienna[8] who removed the tumour with the kidney on March 8th, 1891—i.e., nearly two years after the accident. The patient was placed on his left side and an incision was made beginning somewhat on the inner side of the mammary line and running almost transversely outwards for about 20 centimetres, being two fingers' breadth below the right arch of the ribs behind. The abdominal parietes were cut through to the peritoneum, the peritoneum was then reflected without being divided, and the tumour was exposed in the hinder part of the wound. The operation lasted one and a half hours, the tumour being extensively adherent to neighbouring structures, and severe hæmorrhage having occurred from the renal artery; the bleeding was arrested by iodoform gauze and a pair of hæmostatic forceps which were left on the vessel for five days. The patient recovered somewhat slowly and left the hospital seven weeks after the operation. The mass removed was pear-shaped and measured 15 centimetres by 10 centimetres. The lower narrower part consisted of damaged renal tissue with blood-clot. The upper wider part was a thick-walled sac formed of laminated clot with a space in the centre containing soft clot and arterial blood communicating directly with the renal artery. Hochenegg's opinion was that owing to crushing of the upper part of the kidney the renal artery was ruptured within the proper capsule of the organ and that this led to the gradual development of the aneurysm. This view was considered to be supported by the specimen which shows the remnant of the kidney and the aneurysmal sac covered by the same capsule. (See Figure.)



Reproduced by Butterworth from the figure in Hochenegg's paper. Aneurysm of renal artery with kidney, removed during life by Albert of Vienna. A, Capsule. B, White laminated clot. C, Cavity. D, Kidney.

In this case the violent hæmaturia which occurred immediately after the accident indicated the rupture of a large vessel. The cessation of the hæmorrhage after a few days, the intervals of a month, two months, and four months between the recurrent hæmorrhages, and the non-appearance of a tumour in the lumbar region until seven months after the injury, suggest that the rent in the artery was from time to time closed by clot which ultimately gave away altogether and allowed of the growth of the aneurysm. If Hochenegg's view is correct that the artery was ruptured within the

[4] Berliner Klinische Wochenschrift, 1891, Band xxviii., p. 1042.
[5] Academiæ Cæsareæ Leopoldino Carolinæ Naturæ Curiosorum Ephemerides, Centuria ix. et x., Observatio lix., p. 142.
[6] Wiener Klinische Wochenschrift, June 25th, 1891, Band iv., p. 471 and pp. 512-515.
[7] This is the same case which is referred to in the Index Catalogue of the Library of the Surgeon-General's Office as being reported by A Illich in La Riforma Medicale, 1891, Anno vii., vol. ii., p. 481.
[8] A recipient of the Fellowship at the recent Centenary of the Royal College of Surgeons of England and since regrettably deceased.

kidney the resistance offered by the renal substance and by the renal capsule may have delayed the development of a tumour.

FALSE ANEURYSM FOLLOWING IMMEDIATELY ON THE WOUND OF THE ARTERY.

The six following cases are examples of false aneurysm developing as an immediate result of a laceration of a branch of the renal artery, and not by the giving way of a true sacciform aneurysm or by the yielding of a thrombus which for a time closed a rent in the artery. Two of them (probably three) might also be described as false hæmato-nephroses, the third as a false aneurysm within the renal capsule; the fourth and fifth were true hæmato-nephroses.

CASE 1.—Hahn[9] reports the case of a large traumatic aneurysm of the left renal artery upon which he successfully operated. It occurred in a woman, aged 49 years, who in March, 1893, fell down several steps. She at once experienced a sudden sensation as if a ball were moving in the abdomen and she felt a lump under the border of the ribs on the left side. When admitted into hospital on May 2nd, 1893, there was a tumour of the size of a child's head in the left side of the abdomen; it was smooth, well-defined, elastic, and dull on percussion. It extended vertically from the costal margin to a hand's breadth below the level of the umbilicus and inwards to within three fingers' breadth of the linea alba. The tumour did not move with respiration or with change of posture, but could be moved between the hands on bimanual examination. There was no pulsation. The urine was normal. The diagnosis was considered to lie between hydro-nephrosis and a soft renal new growth. On May 8th the kidney was exposed by an oblique incision in the loin and appeared to be normal. On puncturing the tumour only blood escaped and on attempting to detach the lower end of the tumour a sudden profuse hæmorrhage occurred. The wound was then packed, the patient was turned on to her back, and an incision was made over the front of the tumour. On tearing through the capsule dark brown coagulum was found, but only a little fluid blood escaped. The tumour was removed after ligaturing the pedicle of the kidney. The operation lasted one and a half hours. Recovery ensued. On examining the specimen after removal it was found that the aneurysm was entirely separate from the kidney but was ensheathed in the same covering. The upper part of the kidney was normal; the lower end was atrophic and flattened. A branch of the renal artery communicated with the cavity.

The immediate development of a tumour in the left renal region and the woman's instantaneous sensation as if a ball were moving in the abdomen indicate that the ruptured artery at once discharged a considerable quantity of blood and that the formation of a false aneurysm was a primary result of the rupture.

CASE 2.—The following case occurred at the beginning of this year in my own practice. A farmer, aged 36 years, slipped and fell, striking his left side against the top of a low wall. This occurred five years before he came under my charge. Immediately after the accident he felt pain in his side and passed blood in his urine. Ruptured kidney was diagnosed by Dr. Sutton Pratt of Rugby, and for five months the patient kept his bed. During the whole of that time he was passing blood in his urine in the following way. A considerable quantity of blood with blood-clots was passed at intervals of a fortnight just for a single micturition but in the intervals the urine was merely blood-stained. Whilst keeping his bed he noticed that his ribs on the left side became bulged forwards, but no particular attention was given to this as he had no pain. At the end of six months after the accident the patient gradually resumed his occupations as a farmer and continued to do so almost to the time of my seeing him. For the last three years especially he thought his side had been getting larger and harder. For a period of two weeks during the last month prior to admission under me on Feb. 5th, 1900, he had kept his bed on account of pain in his left groin and thigh. On admission he complained of pain in the left groin, the left side of the scrotum, and the left sacro-iliac joint. His urine was normal except for an occasional very slight trace of blood. The temperature was normal. On inspection the whole left side of the abdomen, the lower part of the left side of the thorax, and the left loin were bulged by a tumour which was very hard and uniformly so, smooth, quite fixed, dull, non-fluctuating, and not tender, though of late somewhat painful. This tumour extended from the sixth rib in the nipple line to two inches below the level of the umbilicus and reached inwards to the median line. Its most prominent part was in the nipple line at the costal margin. The skin over the tumour was normal or but slightly reddened. Neither Dr. Cayley nor I detected pulsation, but my colleague, Mr. John Murray, thought he could feel a faint pulsation of an expansile character. When some days later the patient was under chloroform a careful examination was made by Mr. Murray, Mr. T. H. Kellock, and myself, but no pulsation could then be detected. There was a loud systolic bruit over the tumour which was best heard in front. It did not extend along the vessels to the groins nor was there any difference in the beat of the common femoral arteries on the two sides. Of late the swelling had been increasing much more rapidly. The diagnosis was thought to lie between a large circum-renal hæmatoma and a renal new growth, and Mr. Murray, believing he detected pulsation, diagnosed it as a renal aneurysm. The early onset after the injury of the swelling, its slow increase in size, its uniform consistence, and extreme hardness and fixity seemed to favour the view that there had been extravasation, coagulation, and organisation of blood in the perinephric tissue, whilst its recent more rapid increase and the supervention of pain suggested that part of the mass was beginning to soften and break down.

The patient readily consented to an exploratory operation, and on Feb. 13th an oblique lumbar incision was made, part of the tumour was exposed and tapped with a small trocar and cannula, and a little reddish-brown serous-like fluid escaped. A small incision was then made through the wall of the tumour and a pair of closed hæmostatic forceps were thrust into its substance. A piece of the contents was seized and withdrawn and on examination this was found to be old discoloured blood-clot of a dirty brown colour. The incision in the tumour capsule was enlarged so as to admit two fingers, and some four or five ounces of dirty brown laminated clot were cautiously removed piecemeal. Then suddenly there rushed against my fingers a stream of warm fluid and simultaneously arterial blood flowed violently from the wound. The situation was tragically critical; it was clear that if such bleeding continued for but a few seconds life would be extinct. A large prominent tumour between the anterior abdominal wall and the spinal column made direct compressure of the aorta impossible, and several pounds' weight of blood-clot were between the opening in the sac of the tumour and the position of the renal artery. Instant action was imperative, yet to attempt to control the hæmorrhage by packing with gauze seemed like stuffing a hole in a sinking ship with tow. I therefore immediately forced my hand across the tumour cavity in the direction of the renal artery and compressed the inner wall of the tumour against the spinal column, whilst with my other hand I pressed firmly upon the front of the tumour through the anterior abdominal wall. By this means I controlled the hæmorrhage almost completely, but not absolutely. I at the same time requested my colleague, Mr. Murray, to extend the incision in the abdominal parietes downwards and forwards towards the groin without dividing the peritoneum and to reflect the peritoneum towards the median line until he could compress the abdominal aorta above the level of the renal artery. I then removed as quickly as possible all the blood-clot—most of which was old and laminated—from the interior of the sac and found the opening of the renal artery by seeing blood come from it in a large jet on releasing pressure. I seized the mouth of the vessel with a large pair of clamp forceps. All hæmorrhage was now absolutely stopped and I was able to proceed with the removal of the sac. As the patient's pulse was somewhat failing one and a half pints of saline solution were injected into a vein in the arm and a dose of strychnine was hypodermically injected. Meanwhile the sac was sufficiently detached from its connexion for a ligature to be passed round the renal artery on the proximal side of the sac and the whole of the anterior and lower parts and a part of the inner and of the posterior wall of the sac were removed.

The rest of the wall was so adherent, especially above to the under surface of the diaphragm, that it could not be detached. The sac extended very high up into the thorax and the spleen with the diaphragm was pushed up a long way. In trying to separate the upper and back part of the sac wall the peritoneum was torn and the lower surface of

[9] Deutsche Medicinische Wochenschrift, August 9th, 1894, p. 637.

the spleen was exposed. The rent in the peritoneum was closed with a continuous suture. A small iodoform gauze drain was placed in the loin and made to project at the back of the incision. The parietal wound, which measured eight inches, was closed by interrupted sutures. The limbs were bandaged and raised, and after removal to bed an enema of brandy, beef-tea, and egg was administered. Hot-water bottles were placed around the trunk and another subcutaneous injection of strychnine was given. The patient rallied and recovered consciousness about an hour after returning to bed. About four hours after the operation he wished to be turned on his side, but finding this position less easy he requested to be placed back again. Shortly afterwards he vomited; then his respiration seemed to fail and within an hour he died.

The blood-clot removed from the sac weighed several pounds and much of it was commencing to disintegrate. There seemed little room for doubting that had the case been left alone the sac would soon have broken through the peritoneum or diaphragm or have become the seat of suppuration. The sac was composed of condensed fibrous tissue, and at one part of it a thin layer of scarcely recognisable kidney tissue formed part of its thickness. Microscopically, this was demonstrated to be renal parenchyma in a state of extreme chronic interstitial inflammation. There was no other trace of the left kidney, and neither in the tumour removed nor at the post-mortem examination was there any trace of the left suprarenal capsule.

At the necropsy there was no blood or free fluid in the peritoneal cavity, but two or three small extravasations of blood and a little recent blood-clot were seen behind the peritoneum in the left loin. The right kidney was healthy. The aorta and left renal artery were normal. A probe passed from the aorta along the trunk of the left renal artery was obstructed by the ligature around its distal extremity. A probe introduced into the left renal vein passed for several inches in the remnant of the wall of the sac but did not emerge into the cavity. The orifice of the renal artery where it opened into the aneurysm was large enough to admit a full-sized catheter. A part of the sac wall which had not been removed at the operation was so intimately incorporated with the under surface of the diaphragm that they could not be dissected apart.

CASE 3.—The following case of traumatic aneurysm of the renal artery within the kidney was recorded by Rouppe,[10] is quoted in Rayer's "Traité des Maladies des Reins," tome iii., and cited by Bloch in his *Thèse de Paris* ("De la Contusion du Rein"), 1873. At Cadiz, on Oct. 28th, 1759, a robust young boatman, Pierre Veldhuisen, in entering his craft fell athwart the gunwale, the full force of the blow being concentrated on the right lumbar region. Severe pain at this spot immediately ensued, which quite incapacitated him. An hour later a bruise as large as the palm of the hand was found at the seat of injury. He was bled from the arm twice within a few hours and a water dressing was applied to the side. The urine passed was highly charged with blood and the pain continued very severe. He was again bled and after a few days' quiet seemed to have completely recovered. Nine days after the accident, while getting into his bunk, he was seized with violent pain in the loin, became pale, faint, and very thirsty, with cold extremities and the apprehension of impending death. The abdomen was then found by Rouppe to be distended and hard on the right side, but soft on the left. The patient soon became delirious and convulsed and died in ten hours with all the signs of hæmorrhage.

Rouppe made a necropsy the same day and found a hard dark mass, larger than an adult head, occupying the right half of the abdomen and formed by a retro-peritoneal hæmorrhage, in the midst of which, like the stone within a peach, lay a smaller and harder round mass. This smaller tumour was a multilocular sac, the several pouches of which were separated by membranous septa, and contained clot but of a firmer nature and laminated. The kidney was seen on laying open the sac of this second tumour surrounded by dark blood. On distending the renal artery with air some bubbles escaped just where the vessel entered the kidney, and on further examination the lesion was found just within the true capsule. The blood had penetrated along the course of the vessels to the outer aspect of the kidney so that it entirely separated the capsule from the kidney substance, which itself was not found to have been penetrated.

This inclosure of a ruptured aneurysm or artery in a mass of blood-clot is a familiar experience in connexion with the most fruitful source of hæmorrhage in the lung—where the escaped blood collects and coagulates in a cavity around the vessel greatly obscuring its origin, but usually proving on careful search to be directly connected through the rent with other clot within its lumen.

CASE 4.—This was a case of traumatic aneurysm of the nature of a true hæmato-nephrosis: the orifice of the renal artery opened into the sac, all traces of pyramidal and cortical substance had disappeared, and there was a remittent tumour in the hypogastrium and left flank. The case is reported by M. Danyau, was commented upon by Rayer,[11] and was quoted in my book in 1884. A young workman, aged 15 years, was taken to the Hôtel Dieu in the early part of October, 1835; the anterior region of the left kidney had been contused against a counter; after this he passed blood with his urine. Some time afterwards, the hæmaturia for a while having ceased, he suddenly voided from three to four "palettes" of pure and bright blood. On Nov. 19th a remittent tumour was felt in the hypogastrium and left flank and seemed to be elongated in the direction of the ureter. The bladder contained clots of blood; there was retention of urine, catheterism was very painful, and the tumour, without becoming more painful, was more prominent and larger. He died on Nov. 26th. At the post-mortem examination the tumour consisted of the kidney, its pelvis, and the commencement of the ureter greatly distended and filled with a mass of black coagulum which had already commenced to decompose. There was no trace of either pyramidal or cortical substance of the kidney left; they had both disappeared as the result of intra-renal pressure caused by the effused blood. On examining the interior of the sac with care the orifice of a renal artery, plugged by a clot, was discovered. The walls of the tumour were formed by the fibrous tunic of the kidney and the condensed layers of the surrounding cellular tissue. The lower end of the left ureter and the kidney and ureter of the right side were healthy; the bladder was healthy and moderately distended with clear urine.

CASE 5. — Mounier[12] reported the following case of traumatic aneurysm within the renal capsule which he described as a "hæmato-nephrosis." A soldier, aged 25 years, was admitted on Jan. 20th, 1849, into the Val-de-Grâce military hospital three hours after having been knocked down by a handcart which passed across his abdomen from right to left at the umbilical line. He instantly felt the most agonising pain, which continued long after his admission and was accompanied by bilious vomiting, tympanites, and rapid respiration. The pain radiated over the whole abdomen, but at times was most marked in the left flank and left iliac fossa. On the second day the pain greatly abated and was limited to the left loin and left side. He went on improving up to the seventh day, when hæmaturia appeared and continued, but otherwise the patient was no worse. He had been getting up for several days when suddenly, on Feb. 9th (20 days after the accident), he was seized with the most violent pain in the left flank and with an intense desire to micturate, which, however, he was unable to accomplish. The next day there was only slight pain, increased, however, by pressure. As he had not passed urine naturally since the previous day a catheter was used and drew off one and a half litres of bloody urine. Thus matters continued till Feb. 14th, when the lumbar pain increased. The hæmaturia resisted all treatment. The patient, enfeebled by the quantity of blood passed with the urine, by pain, and by the loss of blood from the frequent application of leeches, died on March 2nd, 41 days after the accident. No mention is made in the clinical account of the case of any tumour having been detected during life, but the description of the necropsy leaves no doubt that one must have been present.

At the post-mortem examination, on opening the abdomen a voluminous tumour was seen to occupy the left flank and hypochondrium and even to encroach upon the right of the median line. It was egg-shaped with its larger pole upwards. It extended from the sixth rib to the anterior superior iliac spine and measured in its vertical and

[10] Rouppe (D. Ludovico): "Nova Acta Physicho-Medica," tome iv., p. 67, 1770.

[11] Traité des Maladies des Reins, vol. i., p. 280.

[12] Gazette des Hôpitaux, 1849, p. 148.

transverse diameters 25 centimetres and 20 centimetres respectively, and 65 centimetres and 50 centimetres in its circumferences. It weighed 3·490 grammes. After reflecting the peritoneum from off it the tumour was seen to be prominently embossed, having seven or eight large embossments separated by deep grooves, which gave it the appearance of the large intestine of a horse greatly distended. On the under surface of the tumour, which was similarly embossed, was seen a central depression where the renal vessels and ureter entered. On laying open one of the largest of the pouches on the inner aspect of the tumour a large quantity of soft clot, besides two litres of a turbid red fluid like the lees of wine, were removed, and then was seen the irregular gaping orifice, of the size of a chicken-quill, of a branch of the renal artery. The margins of this orifice were indurated and blackened by blood which had been effused into the tissues. The cavity of the pouch was lined with a whitish flocculent membrane and had the structure of mucous membrane. There were seven other similar cavities of large size with similar contents isolated from one another, but each communicating by one or two openings as large as goose-quills with the renal pelvis. The renal pelvis itself was not dilated and was of normal appearance, but contained a calculus of the size of a bean, irregular, and black on its surface, and adherent to the mucous membrane. The calculus consisted of organised material surrounded by a shell of oxalate of lime. Six other small oxalate of lime calculi and some cretaceous material were also found in the walls of this loculated sac. A cyst of the size of a hen's egg inclosing pus mixed with blood had no communication with the other cavities. The walls of the tumour were one centimetre thick, tough, and composed of fibrous tissue, with, in some places, a soft reddish tissue which was proved to be renal parenchyma. The ureter was obstructed by blood-clot, but otherwise was normal. The urinary bladder contained 250 grammes of bloody urine, but its mucous lining was natural. The left lung was crowded upwards and the heart occupied a horizontal position. The rest of the organs were natural.

Mounier thought that the calculi were formed subsequently to the rupture of the branch of the renal artery and to the dilatation of the cavity of the kidney, and gives plausible reasons for this opinion. It is not at all improbable, however, that the calculi pre-existed the injury and that the sacculation of the kidney was due to the calculus found in the renal pelvis. If this were so the blood from the ruptured renal artery found a sac ready for its reception. The case recorded by Danyau in which a large false aneurysm within the cavity of the kidney (hæmato-nephrosis) was formed in less than two months gives support to the opinion that a false aneurysm of the size and character which Mounier describes could be formed in 41 days without there being a pre-existing state of dilatation of the kidney.

CASE 6.—Mr. John Murray tells me of a case of traumatic false aneurysm of the renal artery which he saw when a student at the City Hospital in Dublin. There was a large tumour in the flank extending into the iliac fossa. It occurred in a man about 50 years of age, but was not diagnosed during life. A post-mortem examination disclosed a large mass of blood-clot and a rupture of the renal artery. The case has not been published.

ANEURYSM OF THE RENAL ARTERY NOT OF TRAUMATIC ORIGIN.

There are on record a few cases of true, and at least three of false, aneurysm which do not owe their origin to any injury so far as could be ascertained.

CASE 1.—Leudet[12] recorded a case of aneurysm of the right renal artery found on post-mortem examination of the body of a woman, aged 62 years, who died from nephritis, having suffered from albuminuria for two years and dyspnœa, cough, and general œdema for two months before death. The right kidney was less than half the size of the left, and just beyond the bifurcation of the right renal artery on the lower and smaller of the two branches into which it divided there was an aneurysm of the size of a haricot bean filled with rather soft yellowish material and communicating with the artery by an opening of almost capillary fineness. The walls of several of the arteries of this woman were calcareous. Leudet was of opinion that this little aneurysm was formed primarily in the walls of the vessel and opened subsequently into its lumen. He gives in the same journal a case of a woman, aged 70 years, who had two aneurysms on separate branches of the splenic artery. Each of them communicated with the lumen of the arterial branch on which it was situated and on one of these branches there was another small tumour of the size of a lentil inclosed in the substance of the arterial walls and projecting the outer surface of the vessel. Leudet remarks: "These aneurysms would seem, as regards their pathology, to be due to the mechanism first pointed out by Corvisart, then by Guthrie, and finally by Bérard—namely, that they are developed primarily in the thickness of the wall of the artery."

CASE 2.—Danner[14] describes an aneurysm of the size of a hazel-nut at the point of bifurcation of the right renal artery of a gouty man, aged 66 years, who had passed many uric acid and phosphate of lime calculi and who for five years before death suffered from dyspnœa, palpitations, and pulmonary congestion and who died suddenly in an attack of dyspnœa. The contents of the sac were of a blackish colour and rather adherent. The aorta, splenic and basilar arteries, and the arteries of the right kidney were calcareous and the heart was enormously hypertrophied. The right kidney was atrophied and cystic. The left kidney contained a calculus and much calculous débris.

In the Museum of St. Bartholomew's Hospital (Catalogue, vol. i., 1882, No. 1536) there is a specimen of a small aneurysm of a renal artery. The wall of the sac and of the adjacent part of the artery are thick and calcareous.

CASE 3.—Oestreich[15] reported a very interesting case of an aneurysm of the right renal artery of the size of an apple. It gave rise to no symptoms during life, developed between the kidney, suprarenal capsule, and the aorta, extended upwards behind the liver, and was almost completely filled with clot. Whether it arose within or outside the kidney is uncertain. It was discovered at the post-mortem examination of a young man who died from multiple embolisms and malignant endocarditis.

CASE 4.—Armstrong[16] published a case which he considered to be unique—viz., an aneurysm of an interlobular branch of the right renal artery. It was found after death in a man, aged 50 years, who was admitted into hospital on May 20th, 1879, with a tumour diagnosed to be of the right kidney, and who died comatose the same evening. At the post-mortem examination there was chronic nephritis of the left kidney. The right kidney was apparently greatly enlarged, its capsule was adherent to the peritoneum and intestines, and there were other evidences of a circumscribed peritonitis; this enlargement was really due to a black blood-clot weighing 30 ounces beneath the capsule and surrounding the kidney itself. The renal capsule was ruptured and blood had escaped through the rupture into the peritoneal cavity. There was circumscribed peritonitis over the right kidney. In the external border of the kidney between the renal tubules was a small spherical cavity about one millimetre in diameter filled with well-organised fibrinous clot. This was the source of the hæmorrhage; and from the character of its contents and its shape Armstrong regarded it as an aneurysm. The etiology of the disease he considered to be alcohol, of which the state of other organs showed evidence.

CASE 5.—Dourlin[17] published a description of an aneurysmal tumour of the left renal artery in a man, aged 52 years, which occupied the whole of the left hypochondrium and left flank. There was no history of any injury. For two months before coming under the observation of Dourlin he had felt a considerable and disabling discomfort in the left hypochondrium and was unable to walk without suffering from time to time sudden and forcible retractions of the left testicle, accompanied by pain, which compelled him to cry out. In addition to the tumour the abdomen seemed to be tense and its walls slightly œdematous. The connexions of the tumour could not be satisfactorily made out; but the tumour increased in size and the patient suffered from time to time insupportable pains in the abdomen, the urine diminished in quantity, micturition became difficult, and vomiting and frequent attacks of

[12] Ibid., 1852, p. 583.

[14] Bulletin de la Société Anatomique, 1856, second série, tome I., xxxi. 170.

[15] Berliner Klinische Wochenschrift, 1891, Band xxviii., p. 1042.

[16] American Journal of the Medical Sciences, October, 1885, p. 453.

[17] Journal de Chirurgie et de Médecine, Vendémiaire an. xii. (October, 1803), tome vii., p. 252.

syncope and hiccough terminated in death at the end of four months from the beginning of the symptoms. On post-mortem examination the tumour was found to be behind the peritoneum adherent by its upper end to the spleen, which was pushed upwards under the diaphragm, whilst its lower end extended into the iliac fossa. It was ovoid in form, contained about three pounds of blood, and on section proved to be a greatly loculated sac with no trace of parenchyma of kidney remaining. It communicated with the renal artery, which was dilated into an aneurysmal sac commencing immediately after its orifice from the aorta. The renal vein preserved its natural size and direction and its branches passed into the different partitions of the tumour.

CASE 6.—Gossett[18] related before the Medical Society of London (Nov. 30th, 1829) the case of a woman, aged 43 years, who shortly after an attack of so-called rheumatic fever began to complain of severe pain in the loins and extreme tenderness over the left kidney. She died from hæmorrhage caused by the bursting of an aneurysm of the left renal artery into the renal pelvis. There had been profuse arterial hæmorrhage with dysuria and frequent attempts at micturition during life, and five days before her death she had been actually at the point of dying from loss of blood. At the post-mortem examination there were about 18 ounces of coagulum in the urinary bladder. The other viscera were healthy. No description of the aneurysm is given, but from a careful perusal of the case it is clear that no abdominal swelling was detected during life.

CASE 7.—W. W. Keen[19] has quite recently published and illustrated a very complete account of a large false aneurysm of a branch of the right renal artery which occurred in an unmarried lady, aged 45 years, who had no recollection of ever having had an injury. The interest of this case is enhanced by the fact that, like the traumatic aneurysms reported by Hochenegg and Hahn, it was successfully removed by operation. The clinical symptoms were a tumour in the right side of the abdomen which filled the entire space between the border of the ribs and the iliac crest, and extended from the right flank to about five centimetres on the left of the middle line. It was tense, firm, not tender, not nodulated, but apparently cystic at the inner part. The right kidney had been known to be moveable and slightly enlarged for five years, and for this length of time the patient had experienced a sense of discomfort on the right side of the abdomen which she had thought to be rather larger than the left. During these years she had had a series of 10 or 15 attacks of chilliness and fever followed by nausea without vomiting. The temperature in one of the attacks reached 105° F. One attack had lasted for 10 days and another about five weeks. The urine contained neither sugar, blood, casts, crystals, albumin, nor tubercle bacilli. The diagnosis lay between hydro-nephrosis and a renal new growth. Keen removed the tumour with the kidney across the abdomen (transperitoneally) through an incision 17 centimetres long over the front of the tumour. The pedicle was so broad that it had to be secured in seven different sections, the arteries being numerous and large and the veins enormously distended. The tumour was readily isolated as soon as the outer layer of the meso-colon was torn through. The operation lasted less than 30 minutes but was attended by very profound shock. The patient made a rapid recovery and left the home on the nineteenth day after the operation. After removal the tumour was found to consist of a large central mass of coagulum and a capsule. The capsule was continuous with the capsule of the kidney. The larger part of the tumour was formed of laminated blood-clot of different ages. The outer surface of the clot was recent and soft, whilst the central part consisted of older and almost completely decolourised fibrin. The renal artery and its branches ran over the wall of the sac and the lower branch of the renal artery opened into the sac. The sac did not communicate with the renal pelvis. The kidney tissue showed advanced chronic inflammatory changes and near the hilum there were a number of small renal cysts. The walls, especially the intima of the blood-vessels throughout the kidney, were of extraordinary thickness. Keen gives an illustration showing the tumour and kidney.

Although the cases I have here collected are the only instances of aneurysm of the renal artery or its branches with which I am acquainted, it is probable that many others of the kind have been overlooked at post-mortem examinations or, if detected, have remained unrecorded. Now that attention is drawn to their occurrence there will, I anticipate, be other examples forthcoming in the near future.

As a result of injury, aneurysm, whether of the sacciform or diffused type, is of great practical importance. If of the sacciform type it would seem to be usually either associated with some other injury to the kidney or renal pelvis which gives rise to hæmaturia or to a large tumour consisting of blood and urine; or the sacciform aneurysm after a time ruptures and a false aneurysm is formed.

A false aneurysm, whether caused by the rupture of a sacciform aneurysm or by the direct rupture of the walls of the artery, gives rise to a tumour of great clinical interest, puzzling to diagnose, difficult and dangerous to treat, and hitherto, if not operated upon, invariably fatal to the individual afflicted.

The knowledge that an aneurysmal tumour occasionally may be a late and not an immediate consequence of injury; that it may be caused by an accident which either slightly or extensively damages the kidney; that it often ultimately leads to absolute destruction by atrophy or inflammation of the whole or a considerable part of the organ; and finally that there is great risk attached to operative treatment and certain death if such treatment is not adopted,—such knowledge ought to be an additional inducement to surgeons, if other conditions do not contra-indicate the operation, to explore early every kidney which is seriously damaged by an accident.

ETIOLOGY.

Of the 19 cases of renal aneurysm which I have collected (the case of Titius and the specimen which is in St. Bartholomew's Hospital Museum with the others make 21 cases, but they are not analysed with them because no particulars are given) 12 were traumatic and seven spontaneous. Of the traumatic cases two were sacciform when discovered after death and nine were false and one doubtful. Of the nine false aneurysms two occurred from the bursting of a sacciform aneurysm; one followed after a time from the yielding of a thrombus in the ruptured artery, without having been preceded by a sacciform aneurysm; five were the immediate consequence of rupture of the artery; and in one (Daniel Nebel's) the nature of the aneurysm is not described. Of the seven spontaneous aneurysms three were sacciform; one of these was of the size of an apple, and two are described as being of the size of a haricot bean and of a hazel nut respectively. One was a false aneurysm in the form of a true hæmato-nephrosis. In one case no description of the aneurysm is given beyond the fact that it ruptured into the renal pelvis. The sixth was probably sacciform originally but ruptured and became a false aneurysm, forming an intracapsular tumour surrounding the kidney. The seventh seems to have been a false aneurysm from the beginning.

Sex.—Of the 12 traumatic cases ten were in men and two were in women. In the case of one of the women there might be some doubt as to whether the sacciform aneurysm which subsequently ruptured was really of traumatic origin because, though she had a fall on a staircase, she had apoplexy from a hæmorrhage into the left thalamus and was the subject of endarteritis, her aorta and other arteries being affected. The branches of the renal artery next the clot were markedly dilated and tortuous. Of the seven spontaneous aneurysms four were in males and three were in females.

Age.—Of the traumatic cases the age is stated in ten. One was 15 years, one 19 years, one 21 years, one 25 years, one 36 years, another 39 years, and four were between the ages of 49 and 51 years. Of those whose ages are not given both were men in active life. One is described as a "young boatman"; the other as a "doctor" whose aneurysm resulted from a fall from a horse four years before his death. Of the spontaneous cases the ages of six are stated; they were all over 40 years; the youngest was 43 years and the eldest was 66 years. The seventh was described as "a young man."

Nature of injury or disease.—Of the traumatic cases one patient was thrown out of a cart; another was struck by the buffer of an engine; a third was thrown from a horse; two fell from a height, striking the loin of the side of the injured kidney; one slipped and struck his loin on the gunwale of his boat; one fell against a counter and contused his side; one fell against a box; another slipped and fell against the edge of a low wall; one was run over by a

[18] THE LANCET, 1829-1830, vol. i., p. 788.
[19] Philadelphia Medical Journal, May 5th, 1900, p. 1038.

handcart; and two fell against steps or a staircase. Of the spontaneous cases malignant endocarditis with multiple embolisms was present in one case; calcareous degeneration of the coats of the arteries was present in two others. Another died from nephritis; the fifth died comatose with destruction of one kidney from the aneurysm and chronic nephritis of the opposite kidney. In the sixth the patient had what must have been erroneously called an attack of "rheumatic fever," for it passed off in five days. It seems probable that an embolism or a thrombus led to the development of the aneurysm. In the seventh case there was absolutely no assignable cause. Leudet, following Corvisart, Guthrie, and Bérard, thought the small aneurysms were developed in the substance of the wall of the vessel and subsequently opened into the lumen of the artery.

PATHOLOGICAL CONSEQUENCES.

As long as a sacciform aneurysm remains unruptured it seems not to produce any distinct changes in the kidney or part around. If situated within the kidney capsule the little tumour may press aside and more or less flatten some of the tubules, but without destroying them, as in Armstrong's case. If a sacciform aneurysm bursts into the renal pelvis profuse hæmorrhage is the result; the bladder may become distended with blood and blood-clot, and blood may flow away from the urethra, as in Gossett's and Oestreich's cases. The patient thus dies from sheer loss of blood, or from this cause combined with the pain and other effects of blood-clots distending, and decomposing within, the bladder.

When a false aneurysm is formed, whether as the effect of injury or disease and whether indirectly by the rupture of a sacciform aneurysm or directly by the giving way of the artery matters not, then serious damage is generally done to the kidney, and extensive pressure changes and displacements are wrought in the surrounding tissues and organs. The blood may distend the pelvis and calyces, and, producing complete absorption of the renal parenchyma, create a true hæmato-nephrosis; or it may be extravasated entirely within the capsule, between it and the renal parenchyma; or partly within the renal capsule and partly into the perinephric tissue; or it may be entirely outside the renal capsule completely or partially surrounding it. The kidney may have undergone complete or partial atrophy; or the kidney, if any remains of it, may be spread out in the wall of the sac as it was in the case under my own care in which the kidney had almost, and its adrenal had completely, disappeared.

When part of the kidney has been flattened out or absorbed the rest of the organ may appear to be covered by the same capsule. Even when the aneurysm has been stated to be entirely separate from the kidney it is yet described as being in the same capsule (Hahn). This condition of the capsule is, I have no doubt, in some cases only apparent, not real. The matting together of the sac of the aneurysm and the structures adjacent becomes so intimate and firm that it is impossible to say where renal capsule ends and sac begins. It is the same with the capsule of an adrenal tumour, as I pointed out in an article on Tumours of the Adrenal published in another journal some months ago.[20]

The blood may filter along the course of the vessels and thus get within the capsule of the kidney and thence break into the calyces. If the blood is really extravasated within the renal capsule it may either break down and disintegrate the parenchyma and rupture the capsule or spread between the parenchyma and the capsule (Armstrong's and Rouppe's cases).

If the capsule is stripped up from the parenchyma the latter may be undamaged except that its outer surface is slightly roughened or eroded; but the capsule may be greatly distended and even ruptured, and thus blood may escape into the peritoneal cavity (Armstrong's case) as well as into the retro-peritoneal tissue.

The tumour may displace and become extensively adherent to neighbouring structures. The colon is commonly displaced towards the median line, the liver and spleen are pressed upwards, and the diaphragm may be raised upwards. Some of the adhesions of the sac wall may be loose and easily separated, others may be so dense and strong that they are absolutely inseparable—as was the case between the sac and the diaphragm and the sac and some parts of the peritoneum in my patient.

The contents of the sac are, for the most part, blood-clot; there is sometimes only a very little fluid blood or blood serum, so that not more than a drachm or two can be drawn off when the tumour is tapped in the course of exploring it.

The clot in the sac is of different ages, colour, and consistence. In some cases it has been found nearly all laminated; in others chiefly passive; in others, again, disintegrated.

When a small sacciform aneurysm and a blood tumour co-exist the source of the blood which forms the tumour is not always the vessel upon which the small sacciform aneurysm is situated. The blood may be derived from a ruptured vein or from the parenchyma (Reeves's case), neither the artery on which the aneurysm is situated nor the small aneurysm itself being lacerated. The blood may be derived from the vessel on which a small aneurysm is situated and not from the aneurysm itself (Hilton's case); when this is so two aneurysmal conditions really co-exist in connexion with the same vessel—namely, a small sacciform aneurysm and a large false aneurysm.

The perinephric tumour co-existing with the small sacciform aneurysm may be composed partly of blood and partly of urine, the blood being derived either from the aneurysm or the artery on which it is placed or from a different source altogether. The urine comes from a lacerated renal pelvis or calyx (Reeves's and Hilton's cases) or ureter. Either a spontaneous (Gossett's) or a traumatic (Oestreich's) aneurysm may burst into the renal pelvis. In Daniel Nebel's case as well as in Armstrong's death was caused by the rupture of the aneurysm into the peritoneal cavity. Both local and general peritonitis have been caused by the aneurysm, and in Hilton's case there was a slough with a perforation in the peritoneum over the tumour.

SYMPTOMS.

An unruptured sacciform aneurysm gives rise to no clinical symptoms and is only discovered at the post-mortem examination of a person who has died from some other disease or from some other effects of the same accident which caused the aneurysm.

It is possible that a small unruptured aneurysm no larger than a haricot bean may assist in producing atrophy of the kidney (Leudet's and Danner's cases), but this would be unattended with any clinical signs.

A false aneurysm, no matter how formed, whether traumatic or spontaneous, probably always causes, sooner or later, a tumour, and nearly always gives rise to hæmaturia. There are no symptoms other than these (tumour and hæmaturia) which are commonly due to the rupture of a sacciform renal aneurysm or of the wall of the renal artery itself.

Tumour.—A tumour was detected during life in 14 out of the 19 cases, and in one other it is quite certain that a tumour must have existed. The size of the tumour varies from that of a double fist to a swelling which fills half the abdominal cavity, reaching vertically from the false pelvis to the dome of the diaphragm which it pushes upwards, and laterally from the side of the flank inwards as far as or beyond the median line, bulging the loin backwards and outwards and the abdominal parietes forwards.

The date of its appearance and the rate of its growth vary according to the degree of resistance of the tissues into which the blood is effused and the extent and firmness of the coagulum which for a time may close the rent in the vessel or the aneurysmal wall. In one case (Rouppe's) which ended fatally and suddenly on the tenth day—no doubt from the rupture of the false aneurysmal sac which was formed by the capsule of the kidney—the tumour was only detected a few hours before death. When the extravasation is into the perinephric tissue it does not follow that the tumour appears earlier or grows more rapidly than when it is within the capsule or actually within the pelvis and calyces of the kidney. If the first effect of the injury is the formation of a small sacciform aneurysm or of a rent in the vessel wall which becomes plugged by coagulum all the immediate clinical symptoms due to the accident may pass off, and the patient may be dismissed as quite well, and a longer or shorter interval may elapse before any signs at all are detected of a tumour. On the other hand, the presence of a swelling may be detected at once, or within a few days after the injury, as in Hahn's case and my own. It is possible that a small aneurysm might rupture into the renal pelvis or a calyx and cause death by hæmorrhage without giving rise to a tumour; unfortunately, in one case in which death was brought about in this way no description of the

[20] Brit. Med. Jour., Nov. 11th, 1899.

aneurysm is supplied (Gossett's). In Oestreich's case of traumatic aneurysm where hæmorrhage into the renal pelvis occurred there was a large tumour in communication with the renal pelvis.

The tumour, on bedside examination, is generally neither irregular nor nodulated on the surface, and no case is related where the kidney formed a projection upon the tumour, as it does sometimes in perinephric extravasations and in some tumours of the kidney or adrenal. The tumour is but slightly moveable, if it is not actually fixed; it rarely if ever moves with ordinary respiration or by change of posture, though in several of the cases there has been some antero-posterior mobility on bimanual examination (*ballottement*). The abdominal parietes may be tightly stretched over the tumour, but have no appearance of being adherent to it or infiltrated by it. No enlarged veins in the parietes, no recently developed varicocele such as is seen in some cases of new growth of the kidney and adrenal, no œdema (except a slight degree in Dourlin's case), and no marked redness have been noted.

Pain.—The tumour is not generally tender on pressure or the seat of acute pain. On the other hand, it may give rise to insupportable pain, as in Dourlin's and other cases. If it attains to a great size it may cause some discomfort or a dull aching. In one case pain in the loin occurred for three months before a tumour was detected; in another there was severe pain in the sacral region from time to time, especially on sitting. Pain and tenderness may exist if localised peritonitis is present. In Gossett's case the tenderness over the kidney of the affected side was so great that the patient could scarcely bear the pressure of her clothes. In most of the cases there has been severe pain immediately after the injury which caused the aneurysm. In Dourlin's patient retraction of the testes of the same side was a striking symptom.

Hæmaturia.—This is a very common symptom and the next most important to tumour. Indeed, it may be the most important symptom and may possibly be fatal before any tumour has been formed. More frequently than tumour hæmaturia is the earliest symptom and may precede tumour by many months or even a year or two. It may commence immediately and go on for months after the injury or to the end of life; or beginning at the outset of the case it may cease after a day or two and remain absent for months; in my case it commenced immediately after the injury, continued for five months, then ceased, and did not re-appear, though the patient survived for four and a half years longer. It may not commence, however, till long after a tumour has been known to exist, as in Keen's case of spontaneous false aneurysm, and then it was but a trace, and only noticed on one occasion. A small sacciform aneurysm may rupture immediately into the renal pelvis or a false aneurysm may open by ulceration into it, and then the hæmorrhage may be profuse and fatal. There may be hæmaturia, without any direct communication between the renal pelvis and the aneurysm, owing to the extravasated blood burrowing inwards from the hilum and breaking into a calyx or disintegrating the parenchyma. Hæmaturia may be coincidental and not directly connected with the aneurysm, but may arise from other injuries to the kidney, as probably was the case in Reeves's patient.

When the hæmorrhage is very profuse the blood may flow away freely through the bladder and out of the external urethral meatus; or long clots may be extruded from the urethra. If this happens in the female it may be mistaken for uterine hæmorrhage or bleeding from the genitalia (as in Gossett's and Oestreich's cases) unless a careful examination is made.

Pulsation.—This symptom, so characteristic of most other aneurysms, is remarkable by its absence in renal aneurysm. In two cases (Hahn's and my own) it was suspected to exist and in each of these it was very indistinct if really present; in neither instance could it be made out on most careful palpation of the tumour just before and during the operation. In one case (Daniel Nebel's) pulsation was detected and the case diagnosed as an aneurysm. In Grüber's case it is stated there was no pulsation, neither were there any auscultation signs. As Keen has remarked: "The chief reason why the diagnosis has not been made is that the artery is relatively small and the sac very large, hence the impulse of the blood is not sufficient to distend the large sac and produce pulsation."

Auscultation.—Observation on this point seems only to have been made in one case beside my own and in that case no bruit was detected. In my patient's tumour there was no thrill, but there was a loud systolic bruit over the tumour, best heard in front, but which did not extend along the vessels towards the groins.

The urine.—Except for the presence of blood, or of a little albumin in the intervals between the attacks of hæmaturia, the urine is normal. If some independent disease affects the kidney, or if pyelitis follows a laceration of the kidney caused by the same accident which produced the aneurysm (Reeves's case), then albumin, renal casts, or pus may be passed. Dysuria and frequent micturition have been noted when blood-clots were passing or when the bladder was filled with blood or decomposing blood-clot, and also in Dourlin's case in which hæmaturia is not mentioned as having occurred.

The general symptoms.—These are only such as would be expected from the loss of blood and the pressure effects of the tumour. Loss of strength, loss of flesh, pallor, nausea with or without vomiting, and gastro-intestinal disturbances, such as loss of appetite, indigestion, flatulent distension, and constipation, have been complained of by some, but by no means all, of the patients. Rigors, fever, and rapid emaciation do not occur unless, indeed, the so-called "bilious attacks" with high temperature described in Keen's case can be ascribed to the aneurysm, which is most improbable.

DIAGNOSIS.

As a small sacciform aneurysm, so far as is at present known, causes no symptoms whatever, the question of diagnosis in such cases does not arise. I should not be surprised, however, as time goes on if the symptoms attributed to renal calculus prove on exploration to be in very exceptional cases due to a small aneurysm of the renal trunk or one of its branches.

It is the tumour caused by a false aneurysm which is so difficult to diagnose. The affections with which it is most apt to be confused are renal and adrenal new growths, true and false hydro- or hæmato-nephrosis, and ruptured kidney. The history of an injury is but of little help when the tumour occurs a few months after a fall unless there has been continuous hæmaturia or frequent recurrences of hæmaturia ever since the accident, because malignant growths are also apt to follow injury. Neither is hæmorrhage, no matter how profuse or how bright the blood which flows, in favour of aneurysm as distinct from renal new growths, especially new growths of the renal pelvis. Nor does the rate of increase of the swelling render much assistance in distinguishing the one from the other. Pain and tenderness, rapid emaciation, large veins on the abdominal parietes, varicocele recently developed, and the presence or suspicion of a malignant growth in some other part or organ would point to malignant renal, or adrenal, tumour. Hydro-nephrosis is usually more elastic if not fluctuating, often intermits contemporaneously with marked variations in the quantity of urine passed, is in many cases very painful or even agonising at the times of great distension of the kidneys, is seldom if ever accompanied by hæmaturia, and is never attended by profuse hæmorrhage, and more frequently than not is unassociated with any history of injury. Hæmato-nephrosis develops quickly or even suddenly, often without violence, gives rise to intense pain and much constitutional disturbance, and has most likely been preceded by the symptoms of some other renal affection, such as tumour, calculus, or ureteral obstruction; but the true hæmato-nephrosis, it should be remembered, may be really a false aneurysm either of traumatic or spontaneous origin. In false hydro- or hydro-hæmato-nephrosis following ruptured kidney the tumour is generally developed very rapidly, is attended with great pain, and if the renal cavity is opened there is a diminished amount of urine passed naturally; the urine, at a later stage, will probably contain pus if the patient survives. There is, too, in these cases generally much more shock at the time of the injury and a great deal of constitutional disturbance, with, in some cases, rigors, high temperature, or hectic when the condition has advanced.

It must be borne in mind, however, that perinephric extravasation due to injured kidney or ureter is sometimes delayed for weeks after the accident, and, on the other hand, a hæmatoma from a ruptured renal artery (that is, a false aneurysm) may commence to form from the moment of the accident. In the absence of pulsation in the tumour there

is absolutely no way that I know of, except by an exploratory operation, to distinguish a simple hæmatoma or a true hæmato-nephrosis due to a ruptured vein or ruptured renal parenchyma from a hæmatoma or a hæmato-nephrosis due to a ruptured artery—i.e., a primary false aneurysm. If some weeks or months after an injury, and perhaps after a period of apparent health, a tumour develops having the characters above described, a suspicion of renal aneurysm ought to be aroused and the treatment ought to be directed accordingly.

PROGNOSIS.

The prognosis in false aneurysm is most unfavourable; all the cases hitherto reported which have not been operated upon have died. Only four have been operated upon and three out of the four recovered; the other died. The three successful cases are Albert's, Hahn's, and Keen's. The two former were of traumatic origin. Keen's was a spontaneous false aneurysm. In the unsuccessful case the operation was rapidly followed by a fatal result. This may possibly have been in part attributable to the nature of the operation employed, but the enormous size and the firm adhesions and the other conditions of the tumour would, I think, have made any operation unsuccessful. The descriptions of the operations show how very severe they were and with what great risks they were attended.

All the patients with aneurysmal tumours not operated upon died from their aneurysms. Another case (Reeves's) where a small aneurysm was associated with a tumour caused by perinephric extravasation of blood and urine from laceration of the kidney was also fatal, but not from the aneurysm. One patient in whom no tumour was present died from hæmorrhage due to the rupture of the aneurysm into the renal pelvis. In the remaining three out of the total of 19 cases the aneurysms were quite small and were found in persons who died from causes other than the aneurysm.

The causes of death of the patients not operated upon have been profuse hæmorrhage from rupture into the renal pelvis (three cases), hæmorrhage into the peritoneal cavity, hæmorrhage into the retro-peritoneal tissue from rupture of the false sac, and peritonitis. In the case in which the patient died after operation death was due to shock and loss of blood, but had the man not been operated upon his life could not have been much prolonged, as the contents of the sac were beginning to break down. Some of the aneurysms have existed a long time before death occurred or before the operation was performed. In Keen's case and my own five years had elapsed; in the case of the medical man who fell from his horse four years; and in Hochenegg's case two years. In Gruber's case the patient lived only ten months after the accident and but two months after the detection of the tumour. The most rapidly fatal cases were those in which the aneurysm burst into the renal pelvis; in one of them—a case of spontaneous aneurysm—the first symptoms referable to the kidney were pain and tenderness, and death from hæmorrhage followed on the ninth day.

In another, a case of traumatic aneurysm, the injury happened three months before death, but the tumour was detected only three days before: hæmaturia commenced about a month after the fall, rapidly became worse, then excessive, and continued to the end of life. In Hahn's case two months elapsed after the accident before a tumour was found and the operation was performed a week later; there seem to have been no hæmaturia and no albuminuria throughout and their absence no doubt was a reason why the tumour was diagnosed as being hydro-nephrosis.

In Rouppe's case a tumour suddenly developed with violent pain, faintness, and thirst nine days after the accident, and the patient was dead in 10 hours. Hæmaturia, in this case at first considerable, had ceased some days before the tumour appeared. In Mounier's case the accident occurred on Jan. 20th and death followed on Feb. 14th. In Danyau's case the accident occurred in the early part of October and death took place on Nov. 26th.

TREATMENT.

When a tumour due to a renal aneurysm exists the only prospect of saving life is by nephrectomy and the removal of the whole or the greater part of the aneurysmal swelling. The operation will in most instances have to be commenced as an exploratory proceeding, for though the surgeon may suspect an aneurysm he cannot diagnose it from a hæmatoma due to a ruptured vein or lacerated kidney unless there be pulsation, which, as we have seen, there rarely, if ever, is. In other cases the tumour will be mistaken for a new growth or a hydro-nephrosis. The course to pursue is to commence by making an oblique incision in the loin. As soon, however, as the nature of the tumour is ascertained either the lumbar incision should be considerably prolonged forwards and the renal pedicle reached and cleared by reflecting the peritoneum inwards from off the tumour; or, what is even better if the tumour is very large, the patient should be turned over and a transperitoneal operation performed by opening the abdomen in front along the linea semilunaris of the same side as the tumour, then the peritoneum should be divided along the outer side of the colon, and reflected inwards thereby the pedicle of the kidney is cleared. The whole pedicle should be secured, or at any rate the renal artery should be ligatured before attempting to empty or remove the sac. The nature of the tumour will not at once be revealed on exposing the sac from the loin, but it soon will be if a small incision is made through the sac wall and the contents are found to consist of laminated blood-clot. There may be very little fluid in the sac, and that of a thin pinkish or pinkish-yellow or dirty light brown colour, which will not at all assist the diagnosis, so that a mere puncture of the sac-wall with a trocar and cannula is not sufficient. If, when the sac is incised and a little of its solid contents are removed for examination hæmorrhage occurs, the small opening should be immediately plugged with gauze and the pedicle secured in the manner just described. It is undesirable and dangerous to proceed to remove much of the clot. All that is necessary or safe to be done is to make a small incision through the sac wall sufficient to remove enough of the contents for diagnostic purposes, and as soon as the laminated nature of the clot is detected to cease from further disturbing the sac contents till the vessels of the pedicle are securely tied. It was by not following this course (but by adopting the plan which John Bell employed and so graphically described in a case of gluteal aneurysm and which I once successfully employed in a large aneurysm near the bifurcation of the carotid) that the alarming character and some of the difficulty of the operation in my case of renal aneurysm were due, and I thus specially refer to it as a warning to others. It is the first and only case of renal aneurysm I have had to operate upon, and should it fall to my lot to operate again in a similar case I shall do so by the method and with the precautions I now inculcate. The plan adopted by Albert was a nearly transverse incision from a point a little inside the mammary line outwards for about 20 centimetres and passing about two fingers' breadth below the right arch of the ribs posteriorly. The peritoneum was not opened but was reflected inwards so as to expose the tumour in the hinder part of the wound. The patient was placed on his left side during the operation. Keen's operation was an ordinary anterior or transperitoneal one. Hahn combined the lumbar and transperitoneal methods.

The risks necessarily attending the operation are hæmorrhage and shock. Albert met with severe hæmorrhage from laceration of the renal artery on separating the loose adhesions. This was arrested by iodoform gauze packing and a pair of hæmostatic forceps which were left in place for five days. Hahn on puncturing the tumour through a lumbar incision drew blood, and on attempting to loosen the inferior pole of the tumour a sudden profuse hæmorrhage occurred which he checked by packing the wound. He then proceeded by the anterior incision. In Keen's case, which was commenced and completed through an anterior incision, the patient, in spite of the injection of the saline solution into the veins of the arm, and also of the fact that not over four ounces of blood were lost, was "very profoundly shocked." The pedicle in Keen's case also gave some trouble, being "so broad that it had to be secured in seven different sections, the arteries being numerous and large and the veins especially enormously distended." Another risk is due to the adhesions which may unite the wall of the aneurysm with the peritoneum and bowel, the diaphragm, solid viscera, and prævertebral vessels. If the adhesions are tough and firm, as they were in my patient, it may be impossible to remove the whole of the sac wall. When such tough connexions are present entire separation of the cyst should not be attempted. As much of its wall as possible should be removed and the rest left and drained.

Cavendish-square, W.

A CASE OF ACUTE ALBUMINURIA (ACUTE RENAL CONGESTION) WITH URÆMIA; RECOVERY.

BY F. C. EVILL, M.R.C.S. ENG., L.R.C.P. LOND.

WITH TWO SIMILAR CASES AND COMMENTS

BY SAMUEL WEST, M.D. OXON., F.R.C.P. LOND.

ON Jan. 28th, 1900, I was called to see a man, aged 36 years, who was suffering from insomnia, dyspnœa, and acute headache. As to his family history, his father had died from Bright's disease at the age of 57 years; other members of his family were living and were in good health. The previous history of the patient showed that he had had no serious illness. During the last nine years he had been sole manager of a large business entailing much and constant mental strain; and coupled with this was the fact that for the whole of this period he had never had a reasonable holiday. Three weeks before I saw him he had what he thought was influenza (for which he had no medical advice) and he had not since recovered his usual health. The patient was naturally a man of strong physique and he thought nothing of taking a 50-mile walk at a stretch for "exercise." On Jan. 28th he complained of intense headache, inability to sleep, and a choking sensation in his throat. The respirations were 24, with constant coughing, straining, and retching. His face, neck, hands, and wrists were puffy. There was no ascites or œdema of the legs or of the body. The pulse was 84 and small and the arteries were soft and compressible. The lungs were clear; there were no adventitious sounds and no cardiac lesion. The urine was smoky, blood and casts were present, and about one-third of albumin was apparent on boiling it. The patient was ordered bed, warmth, woollen garments, and a milk diet, and a mixture containing tincture of digitalis, spirit of nitrous ether, and solution of citrate of ammonia, was prescribed. On the 29th he had had a sleepless night. All his symptoms were intensified. The quantity of urine had amounted in 24 hours to 20 ounces. More blood and one-half of albumin were present. The bowels opened freely with compound powder of jalap. One-tenth of a grain of pilocarpin was injected. The skin was very dry. On the 30th the patient had had another restless night in spite of the repeated administration of eight grains of sulphonal. The dyspnœa and retching were very distressing, more especially so at night, but were temporarily and slightly relieved by drop doses of nitroglycerine. The urine was diminished in quantity and was solid with albumin on boiling. The patient's condition was steadily growing worse in spite of counter-irritation and dry cupping over the kidneys and the injection of pilocarpin (up to one-third of a grain) three times a day, the skin remaining dry and emitting a strongly urinous odour. On Feb. 1st only 11 ounces of urine were passed in the 24 hours. At no time had the temperature risen above 99·4°F. On the 2nd I was called at 3 A.M. and found the patient semi-conscious, fighting for breath as though choking, retching and straining, and throwing himself about the bed, calling out constantly from the agonising pain in his head. The respirations varied between 45 and 55 and the pulse was 112, small, and irregular. I performed venesection and removed 20 ounces of blood; this moderated the pain in the head and relieved the general condition perceptibly. I telegraphed to Dr. Samuel West, asking him to see the patient. At 8 A.M., while preparing the patient for a vapour-bath, he was suddenly seized with a violent uræmic fit which lasted about 15 minutes and left him in a semi-comatose condition. At 10 A.M. Dr. West saw him with me and at that time the patient had reverted to very much the same condition as that in which he had been before the fit. The same treatment was continued with increased doses of diaphoretics and with dry cupping, vapour baths, and pilocarpin as before. A diet of milk and raw meat juice was ordered. There was free purging. By the evening the patient seemed easier and by midnight, some oxygen, at Dr. West's suggestion, having been procured, the gas was administered for 20 minutes at a time every two hours. The good effect of the oxygen was most marked, the dyspnœa being relieved, the patient being quieted, and sleep being procured. On the morning of the 3rd there was a decided improvement though there was still grave cause for anxiety. The same treatment was continued and from this time steady improvement resulted. There were no more convulsions, the skin began to act freely, and the kidneys recovered their functions. On the 4th 24 ounces of urine were passed with less blood and albumin present. Each day more urine was secreted, till from the 10th to the 15th the daily average amount was 76 ounces, the partial suppression giving place to over-secretion. There were no hindrances to recovery. Pilocarpin was discontinued on Feb. 8th, vapour baths on the 9th, and oxygen (the frequency and length of time of administration of which were gradually diminished) on the 12th. The inhalations were continued for some days after all dyspnœa had disappeared, for the reason that the gas seemed to act as an antidote to the toxins in the blood and to do good in purifying the system long after its use was indicated simply to relieve dyspnœa. By the 22nd all albumin had disappeared from the patient's urine and there has been no trace of it since. After five weeks' holiday the patient returned to his ordinary occupation and ordinary habits and has since been perfectly well.

The interest of the case lies in the rarity of the kind of attack and in the still greater rarity of recovery from it. The acute renal congestion was not an intercurrent attack in the course of chronic renal disease. There were, and are, no signs or symptoms of granular kidney, no cardiac hypertrophy, and no changes in the retinal or other arteries. Beyond the supposed attack of influenza three weeks before there were no indications of its being a sequela or complication of any other disease, and the cause of it is veiled in obscurity. At the time of the uræmic convulsions the patient's condition was most grave and Dr. West agreed with me in thinking it to be almost desperate. The patient's recovery must be attributed primarily to his own vigorous constitution, and I consider the most potent factors in the treatment were: (1) the free venesection at the critical moment; and (2) the subsequent administration of oxygen, which latter was most efficacious in cleansing the blood from the toxins the presence of which was the exciting cause of all the grave and distressing symptoms.

NOTE BY DR. WEST.

This case is an extremely interesting one. The attack described above was very severe and the patient passed very rapidly into a uræmic state. When I saw him (a few hours after the convulsive attack) he was in a condition of great restlessness and excitability, hardly lying still for a second, rolling from side to side, throwing the clothes off, complaining constantly of headache, and occasionally twitching. With all that his mind was clear. This excitability was greatly relieved by the inhalation of oxygen. It is very remarkable that this patient lived, and still more remarkable that he should now be perfectly well and without a trace of albumin in the urine.

Strange to say, about the same time I saw two similar cases in consultation, the patient in one of which died, while the other made complete recovery. I saw the patient who died in consultation with Dr. Clemow who has furnished me with the following notes: "A gentleman, 41 years of age, who had been ailing for a few months, but without any definite symptoms, was attacked with influenza, which left him still weaker. Three weeks after this attack he was seized quite suddenly with severe headache and lumbar pain. The temperature was raised for a day or two, reaching at its maximum 103° F. Three days later he passed very little urine and on examination it was found to be nearly solid with albumin and to contain much blood and many casts. There was no œdema of the ankles or buttocks or any puffiness of the face, and none developed. About the same time he had a good deal of muco-purulent discharge from the nose, but there was no evidence of diphtheria. He was treated in the usual way for acute albuminuria."

I saw him after he had been one week ill. At that time he was in a similar condition to that described in the first case, being very restless, unable to sleep, with constant headache, occasional sickness, and a good deal of subjective dyspnœa for which no cause was evident. Hiccough set in and became severe. It added greatly to his misery and kept him from getting even snatches of sleep. The urine was reduced to four or five ounces only a day. Various methods of treatment were adopted but no relief was given, and the patient

died a few days later, after about 14 days of illness, having at the last had a few slight fits.

The two cases described were the exact counterparts of one another, though one died and the other recovered. Both, strange to say, had had attacks of influenza two or three weeks previously and they had not taken sufficient care of themselves afterwards. I cannot assert that influenza had anything to do with the attack in either case, but the association is worth noting.

The third case I saw in consultation with Dr. Coates and Dr. Webb. It was that of a man, aged about 60 years, who had been much overworked for many months. His first symptom was sudden headache and general illness, for which no cause was obvious. Routine examination of the urine—for no special symptoms suggested renal mischief—showed the urine to be nearly solid with albumin. The night of the attack he slept hardly at all; he was constantly muttering and wandering, was very restless, and was suffering intensely with general headache. He was treated on general principles. This condition lasted for three or four days and then improvement set in, both in the symptoms and in the state of the urine, and by the end of the week all albumin had disappeared from the urine and, except for debility, the patient was convalescent.

It is a remarkable experience that three cases of this kind should come under my observation in about as many weeks, for they must be extremely rare. They were all instances of most acute albuminuria, with blood, casts, and great diminution in the amount of urine, in the fatal case amounting almost to suppression (there were from four to five ounces only in the 24 hours), and in the two cases of recovery amounting to from 10 ounces to 15 ounces. These patients all passed at once into a condition of acute renal toxæmia, but not that form in which fits are predominant. The prognosis in all seemed desperate, yet when once improvement commenced it was very rapid and recovery became complete. The group of cases most resembling these is that in which acute albuminuria develops in the course of specific fevers—for instance, in scarlet fever; but there was nothing of the kind in these cases, unless the influenza of a few weeks previously is to be held responsible. Moreover, cases of such severity following specific fevers are almost invariably fatal.

A CASE OF ANTHRAX.

BY EDWARD F. M. NEAVE, M.B., CH.B. EDIN.

ANTHRAX is such a very fatal disease that any point, however small, bearing on its etiology should be put on record. Though primarily a disease of cattle men are often affected by anthrax, due to accidental inoculation of the virus. In this country the disease occurs in two chief forms, the external or malignant pustule and the internal, of which there are two varieties, the pulmonary and intestinal. Most of the cases of malignant pustule in this country have come under observation at Guy's Hospital, probably owing to its vicinity to the great leather manufactories and tan-yards at Bermondsey and Rotherhithe.

The late Mr. Davies-Colley, to whom we owe a great deal for our present knowledge of the external form of anthrax, says[1] that most of the cases that came under his care at Guy's Hospital exhibited the external lesion or malignant pustule, infection thus occurring through the skin. At Bradford, on the other hand (where the disease goes under the synonym of wool-sorter's disease), it seems that infection takes place through the lungs, most of the cases exhibiting an asthenic form of pneumonia. Outside these two great centres the disease (in man) is not common, but amongst animals epidemics occur now and again in different parts of the country. Anthrax usually attacks animals by way of the intestines, the food being infected by foreign fodder, litter, and manures, or the animals may be infected by feeding on pastures in which the germs have been preserved. The outbreaks on certain farms which occur now and again may be explained by the fact that the spores can live in the earth for an indefinite time.

Malignant pustule usually occurs in men who come into contact with the hides or fleeces of diseased animals or with the diseased animals themselves, the poison gaining entrance through a wound or an abrasion of the skin. Thus we find that butchers, shepherds, and knackers are very liable to be inoculated with the virus of anthrax. In all such cases the infection is, as a rule, easily traced, but there are certain isolated cases which sometimes occur where the infection cannot be easily traced. The following is a case in point. I shall first give the notes of the case and then discuss the interesting features in detail.

The patient was a middle-sized, muscular man, aged 50 years. He came to me on May 6th, 1900, complaining of an itchiness on the left side of the chest. He said that on the previous day he had felt the left side of his chest itchy and had been scratching it. At that time he noticed what he thought was a pimple above the left nipple. Since then the pimple had been growing larger and the skin around had become swollen and inflamed-looking. Otherwise he said that he felt quite well. On examination, on the left side of the chest, two inches above the nipple, there was a ring of small vesicles with a slightly depressed centre. The ring was of about the size of a threepenny-piece. Beyond the ring of vesicles there were slight swelling and redness of the skin. No enlarged glands could be felt in the axilla. The pulse and the temperature were normal. On the 7th the patient seemed to be fairly well, although the vesicles were larger and the surrounding skin was more swollen, redder, and œdematous. He was going about, but he said he did not feel quite able for his work.

When I saw him on the following day (the 8th) I learned that he had had slight rigors and had suffered from slight sickness and vomiting during the night. The vesicles were still larger and had become confluent, forming a large vesicular ring in the centre of which there was a small dark brown eschar of about the size of a pin-head. Round about there were great swelling, induration and œdema. The skin was dark-coloured, being almost black in patches, and the spreading edge of inflammation was irregular. Owing to the swelling and induration no enlarged glands could be felt in the axilla. The spleen was slightly enlarged. The breathing was regular and was 20 per minute. There was no cough. The pulse was 100, regular, and of good quality. The temperature was 99·4° F. On the whole the patient's general condition was fairly good. On the following night he slept fairly well, but next morning he was much weaker and was suffering from dyspnœa and cyanosis. The dyspnœa and cyanosis increased very rapidly and the patient died the same evening (the 9th), his mental faculties remaining clear to the end.

Through the kindness of Dr. McLagan Wedderburn, the medical officer of health of the county, the serum in the vesicles (obtained just after death) was examined bacteriologically and was found to contain large numbers of the anthrax bacilli (bacillus anthracis). Pure cultures were obtained on agar-agar and a guinea-pig inoculated with the serum died with symptoms of anthrax. The following are the interesting features of the case.

1. *The source of infection.*—On inquiry it appeared that there were no suffering animals on the farm or in the neighbourhood, nor was there anthrax amongst animals in the county at this time. As regards the man's work he had been engaged for the fortnight previously to his illness in sowing different kinds of grain along with artificial manure in the form of bone dust. The question is, therefore, Did infection occur from the grain or from the bone dust? The grain that the patient had been sowing three or four days previously to the beginning of his illness was grown on his own farm, and as no case of anthrax has been known to have occurred for a number of years in the neighbourhood, and as the period of incubation of malignant pustule is said to be from two to three days, I think we may put aside the grain as the source of infection. Bone dust, on the other hand, is known as a source of infection of anthrax. A sample of the bone dust which the man had been handling was examined bacteriologically but with a negative result. Notwithstanding this failure to cultivate the organism from the bone dust I am still of the opinion that the bone dust was the source of infection and that the patient had inoculated himself, his hands conveying the infection. This seems the more likely from the fact that the patient had been in the habit of putting his hand underneath his shirt and scratching his breast. On inquiry it appears that the bones from which the bone dust is prepared are imported from abroad. Greenfield[2] says that animals may occasionally

[1] Transactions of the Royal Medical and Chirurgical Society, 1882.

[2] Quain's Dictionary of Medicine.

be infected by water contaminated by bone dust, but I have not heard or read of any case in which man has been infected by bone dust directly.

2. *The rapid course of the disease.*—The patient first complained of the itching on May 5th and he died on the 9th—i.e., four days after the onset of the disease. This is about the earliest period at which death may occur, although several cases have been reported in which death took place on the third day. As a rule, however, the disease lasts longer than four days.

3. *The temperature.*—The patient's temperature did not rise above 100° F. Some say that the temperature in malignant pustule does not rise at all. Greenfield[3] says: "This may be true in some cases in which there is no general infection. In other cases, while the surface temperature may be subnormal, the rectal temperature is elevated." Other authorities say that in cases of malignant pustule the temperature never rises above 102°.

4. *The site of the lesion.*—In this case the site of the lesion was unusual, for in no case which I have come across has the lesion been situated on the breast. The commonest sites are the face, neck, arms, and hands. In this particular case, as mentioned above, I learned that the patient had been in the habit of scratching his breast and it seems very probable that his hands had conveyed the infection.

5. *The absence of pain and severe constitutional symptoms.*—The absence of pain is of interest as distinguishing malignant pustule from phlegmonous erysipelas, a disease in which there is severe pain and with which malignant pustule is often confounded. As regards the absence of severe constitutional symptoms Greenfield[4] says that "even in cases which prove fatal there may be few or no general symptoms at first and the patient may even continue at work with a large distinct pustule, or there may be only a slight degree of prostration with a little fever."

6. *The absence of feeling of distress.*—The absence of feeling of distress or anxiety on the part of the patient and his clear mental condition are also interesting features to which many writers refer.

The treatment which I adopted from the beginning was strong carbolic dressings locally and tonics. The majority of surgeons advise excision of the pustule, although it is said there is great danger in the operation in allowing the entrance of the bacilli into the blood stream. Others advise the injection of carbolic acid subcutaneously around the seat of inoculation.

Frieckheim, N.B.

ON THE LIMITS OF THE HEART DULNESS IN CASES OF ANÆMIA AND CHLOROSIS.

BY R. WYBAUW, M.D.,

DOCTEUR SPÉCIAL OF THE BRUSSELS UNIVERSITY; ASSISTANT PHYSICIAN TO ST. JOHN'S HOSPITAL, BRUSSELS.

DURING recent years the diagnosis of valvular disease of the heart has undergone a remarkable change. 20 years ago the principal object of the physician was to recognise exactly the seat and the nature of the supposed valvular trouble, and to give a precise anatomical name to it. Nowadays this is no longer sufficient, and much more attention is paid to the state of nutrition and to the function of the heart muscle itself, its strength, and its ability to overcome the increased resistance of the blood.

Normally the wall of the heart, and especially that of the ventricle, has sufficient strength to expel the blood from its cavities into the arterial system, even when the blood-pressure is slightly increased. Of course, if the muscle loses its strength because its nutrition is impaired a complete contraction will be impossible and dilatation will occur. German and Swedish observers have studied minutely the mechanism of "dilatation from overstrain" (Ueberanstrengungs-dilatation) in cases of valvular diseases, of general affections, of anæmia, &c. It is produced when the relation between the blood-pressure in the heart cavity (and more particularly in the ventricle) and the strength of the muscle is no longer normal, the latter being unequal to the former. This may occur in two ways: (1) the blood-pressure may be abnormally increased; and (2) the muscle may be abnormally weak and its contraction less effective.

[3] Ibid. [4] Ibid.

Many infectious diseases cause a similar weakness of the heart, accompanied by dilatation; it exists in a more chronic character in many kinds of valvular diseases or of infection (diphtheria, scarlet fever, typhoid fever, &c.), when the nutrition of the muscle cells is impaired because the blood of the coronary system is more venous or less oxidised, or because its chemical constitution is abnormal. In anæmia and in chlorosis the same conditions exist. In them an acute dilatation of the heart has been frequently observed, with or without recovery and return to the normal size of the heart when the disease had passed away. Recovery is, however, not always possible, for it seems probable that a certain amount of hypertrophy may be added to the primary dilatation.

What happens in chlorosis? The cause of the disease is still unknown—it may be a nervous, trophic, or chemical influence; it is certain, however, that many muscle cells, and especially unstriped muscle cells, lose their tonus and consequently the cavities in the wall of which they are contained have a well-marked tendency to dilate. Dilatation of the stomach and dilatation of the intestine are very frequently found. Professor Glax of Abbazià thinks that in chlorosis there is a general infiltration of the tissues by effused blood-serum—indeed, when the condition of the patient begins to improve the quantity of urine increases and the weight diminishes. Even here where the pure air, the walks, &c., cause an increase of weight in normal individuals after a few days passed in Spa, I often saw the weight of anæmic girls diminish whilst the symptoms markedly improved. It is possible that a similar infiltration as supposed by Professor Glax may exist in the heart tissue and cause a diminishing of force leading to dilatation of the organ as well as in the intestine or stomach. Of course no reference is here made to the common symptoms of heart murmurs in anæmia and chlorosis, only the functional strength of the muscle is at present under consideration. It is well known that a marked murmur may be produced by very little change in the heart's condition (accidental murmurs), or the contrary may be found in many cases. The trouble of the heart function itself is only to be detected by percussion, by examining the pulse, or by the use of radiography (Grünmach).

As it is very difficult for practitioners in bath resorts to obtain a complete history of patients, I here give the history of a young girl whom I saw in Professor Destrée's wards in the Brussels Hospital. She was 16 years of age and entered the hospital on March 25th, 1899. Her father died from tubercle. She had felt herself quite well until five days before her admission, when she suddenly suffered from severe pain in the right hypochondrium and the epigastrium. On examination no other trouble was detected than great anæmia with loss of hæmoglobin and a well-marked increase of the heart dulness, relative and absolute. The relative dulness extended upwards to the second rib and downwards to the lower border of the sixth rib. It extended three centimetres (one and a quarter inches) to the right and 10 centimetres (four inches) to the left from the medio-sternal line. Absolute rest was prescribed and the pain disappeared after three days. The patient soon left the hospital, saying that she felt quite well, the area of the heart dulness being little changed. Immediately after leaving she continued her ordinary hard work and was obliged to re-enter the hospital on July 27th. She only complained of pain in the epigastrium and in the left side. Her general state of health was worse. The stomach was neither displaced nor dilated, but the heart extended 11½ centimetres towards the left, and four and a half centimetres to the right. The apex beat was to be felt in the sixth intercostal space. The patient remained three weeks in the hospital. The limits of the heart dulness charged a little (11 centimetres at the left and three centimetres at the right side of the medio-sternal line). There was no tubercle.

In this case the extent of the dulness outwards and downwards without the slightest sign of heart disease, and its rapid increase during the hard work from the end of April to the end of July, clearly indicated the existence of an uncomplicated dilatation of the heart. This question is a very important one, for several German writers, including von Noorden, Müller, and others, think that in chlorosis there is no dilatation but only a displacement of the heart. The dulness would only seem enlarged because the diaphragm in those patients is higher than normal and causes the heart to be pushed upwards, its greater diameter becoming more horizontal and its right border being displaced towards the right, and the apex outwards but not downwards. Grünmach

published in the *Therapeutische Monatshefte* the result of radiographic examinations and demonstrated the displacement of the diaphragm in cases of chlorosis and other similar diseases. Such cases, no doubt, exist, but in medical science it is desirable to avoid generalising too hastily. I had recently an opportunity of observing several cases in which the apex beat was really displaced outwards but not downwards; it was even found to be in the fourth intercostal space. I think that in those cases there is no dilatation at all, but I find it imprudent to deny completely the possibility of dilatation in chlorosis. Both are possible, and it may be said that in many cases of chlorosis and anæmia there exists a dilatation of the heart cavities causing an increase in the size of the heart dulness, the apex beat being displaced outwards and downwards. On the other hand, dilatation may be only simulated by a displacement of the diaphragm causing the great diameter of the heart to be more horizontal and the apex-beat to be displaced outwards and downwards.

I saw once a very tall youth, aged 16 years, who was in a very bad condition of health which was caused by improper hygienic conditions. He suffered from pain in the epigastrium, and examination revealed only an enlargement of the left ventricle. After several days of absolute rest this dilatation ceased and the limits of the heart became normal. There was no murmur to be heard, but there was cyclic albuminuria which appeared every afternoon. The patient left the hospital after a week's treatment, and soon afterwards (in five weeks) came back with his heart considerably enlarged. Rest and appropriate diet sufficed to restore him a second time, but the cyclic albuminuria remained. Such cases occurring amongst young men may also be considered as a frequent cause of heart dilatation. The muscular wall of the ventricle being in a bad state of nutrition, the blood is incapable of nourishing the muscle cells.

With regard to the treatment in cases of anæmia the greatest importance should be attached to the functional state of the heart. In many cases, especially in commencing chlorosis, walking and other forms of exercise are recommended and often with a good result, but in more advanced cases absolute rest is necessary in order to strengthen the heart and to prevent oppression, &c. It is interesting to notice that in general the patients complain not only of heart palpitation but of pain in the epigastrium. Many of them, having a well-marked heart dilatation, do not notice any abnormal feeling in the præcordial area, and the epigastric pain often disappears when the dulness regains its normal size.

In a bathing-place like Spa, where hydropathic treatment is almost always combined with the internal use of the ferruginous waters, the examination of the heart must never be omitted; indeed, stimulating the circulation and torpid nervous system will greatly help the internal action of the absorbed iron. That combined action, indeed, gives the best result. In cases, however, where the heart is enlarged and the oppression is intense and in some other cases the use of douches may be dangerous, the patient not being able to stand the sudden shock of the water. In such cases baths of natural carbonic acid water are generally found very useful.

Baths of carbonic acid water may be given in cases of chlorosis and anæmia with increase in the area of cardiac dulness. (Palpitation may be nervous and is not a criterion as to the condition of the heart; pure nervous palpitation is often improved by hydropathic treatment with cold water.) As already mentioned the heart becomes enlarged because the blood-pressure is too strong for its feeble muscle. The carbonic acid bath causes a gentle but general action on all parts of the skin. Soon after entering it the patient feels the bubbles of carbonic acid on every part of his body and the skin becomes red, the peripheral vessels are dilated, and the pulse becomes markedly slower and increases in strength. All cutaneous blood-vessels dilate, thereby diminishing the work of the heart. It is, of course, in the same manner that the baths of Nauheim so greatly improve many cases of heart disease—namely, by diminishing the pressure in the vascular system. Indeed, carbonic acid baths, associated with the internal use of chalybeate water, give the best results in the treatment of anæmia with heart weakness. It is necessary to ascertain the extent of the heart-dulness accurately in order to determine whether exercise or rest is required in the treatment or whether douches or baths will be the more efficacious.

Bibliography.—Rieder: Deutsches Archiv für Klinische Medicin, lv. Potain and Vaquez: Semaine Médicale, 1895, p. 415. Von Noorden: Die Bleichsucht, Nothnagel's Specielle Pathologie und Therapie, Band viii., 1. Grünmach: Therapeutische Monatshefte, 1897, 1. Talma: Nederlandsch Tijdschrift voor Geneeskunde, 1895, 10. Müller: Berliner Klinische Wochenschrift, 1895, 38 Henschen: Fischer, Jena, 1898. Glax: Handbuch der Balneotherapie, Band ii., 1900.

Spa, Belgium.

CASE OF SUPRA-HEPATIC HYDATID CYST.

BY GEORGE W. DAVIS, M.D., B.S. DURH., L.R.C.P. LOND., M.R.C.S. ENG.

THIS was a hydatid of about 25 ounces capacity situated between the liver and the diaphragm. The diagnosis was difficult even beyond the generality of hydatids. The patient had a healthy appearance and there was an absence of any concrete symptoms other than that of the percussion outline and skiagram.

A symptom of remarkable character was the diminished urination, almost amounting to anuria, which in association with menorrhagia and slight swelling of the legs was evidently due to pressure on the vena cava by the cyst, probably at the point of the passage of the vein through the diaphragm.

In spite of the apparent well-being of the patient her life was imperceptibly but very definitely ebbing away. She was very gradually losing strength and energy; from being a woman who took an active part in the household management she could merely lie on her bed or sofa, walk short distances, and go about in a bath chair, and even this slight exertion was accomplished with increasing difficulty.

The case was seen by Sir William Broadbent, Bart., by Mr. Charters Symonds, by Mr. Golding-Bird, by Mr. G. H. Makins, by Mr. F. G. Larkin, and by Dr. Barry Blacker. She was first seen by me on Nov. 12th, 1898. The operations were performed on April 12th and 16th, 1899, by Mr. G. H. Makins and the convalescent period extended over two and a half months, during the whole of which time there was much danger of septic infection from the character of the walls of the cyst which kept it gaping and in continual movement.

The patient was a multipara, aged 36 years, and had four healthy children between the ages of seven and 16 years. Her father died from enlargement of the liver at 60 years of age, her mother died from "cancer" at 60 years of age, and an aunt is suffering from multiple abdominal tumours the character of which have not been diagnosed. She has eight brothers and two sisters alive and healthy. Except for confinements and three miscarriages the patient had never ailed until 1894, when Mr. F. G. Larkin discovered the abdominal hydatid which was removed by operation in two stages by Mr. Charters Symonds.

On Nov. 12th, 1898, I was first consulted on account of blood passed by the bowel, apparently due to some obstruction of the vena portæ. This led to a careful examination of the liver, but it will be easier to grasp the main facts of the case by reviewing the chief symptoms separately during the period of five months preceding the operation, then describing the operation, and afterwards the convalescence.

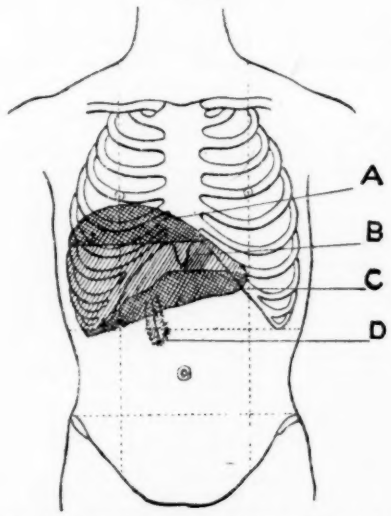
The patient was fair-complexioned, fresh in colour, very young looking, and had such an appearance of absolute health that it was extremely difficult to impress upon the minds of those who saw her for the first time that actually she was seriously ill—as a matter of fact, fading gradually both as to weight and strength. Her weight in November, 1898, was 8 st. 12 lb., and in April, 1899, it was but 8 st. The difficulties of obtaining recognition of the gravity of her condition were further increased by the fact of her occasional improvement in health. Thus at one time she regained 4 lb.

The entire right chest was rather more prominent than the left chest, the measurements being 15½ inches on the right side and 14¼ inches on the left. The dulness of the liver by percussion—the arms being extended by the side of the head—was seven inches vertically in the middle line, five inches on the right side of the ensiform cartilage, and five inches in the posterior axillary line. The dulness could not be defined posteriorly. I found that I could percuss out the liver much more correctly when standing to the left of the patient (Fig. 1).

The dome-like character of the cyst made it difficult to define by percussion and in February I had a skiagram taken

by Dr. Barry Blacker which assisted materially in supporting the diagnosis by percussion and showed most definitely the globular outline of the cyst (Fig. 2). Pain was felt occasionally at the side of the right chest and any pressure on the

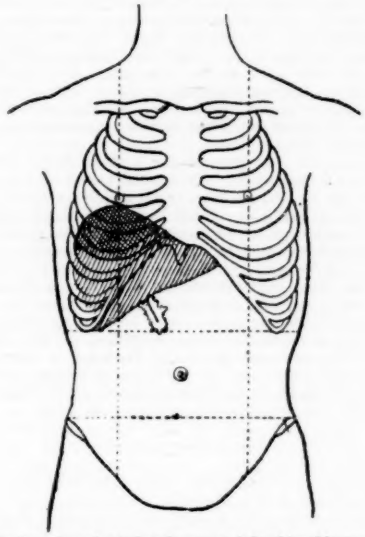
FIG. 1.



A, Actual line of dulness. B, Normal liver outline. C, Actual line of dulness. D, Scar of previous operation.

liver below the ribs caused much pain. The patient's loss of energy may be estimated from the fact that in June, 1898, she cycled for four miles on several occasions, but by March, 1899, she could only walk with difficulty, and even bath-chair exercise exhausted her so much that she came

FIG. 2.



To show the spherical eminence as defined by skiagram.

home blue about the lips, faint and miserable. Menstruation was much more profuse and often the flow would occur in gushes.

The diminution of urine passed was a most remarkable symptom and was doubtless due to pressure by the cyst on the vena cava as it passed through the diaphragm, causing by the venous obstruction a lessened blood flow through the kidneys. There were no uræmic symptom and no colliquative sweating. The urine was of average specific gravity and contained no abnormal constituents. The amount of urine passed in 24 hours was as follows:—

—	Number of observations.	Average ounces.	Maximum ounces.	Minimum ounces.
November, 1898 ...	9	18	28	18
December, 1898 ...	17	12½	20	5
January, 1899 ...	24	13½	24	4
February, 1899 ...	24	14	25	6½
March, 1899... ...	24	10	19	3

The amount of fluid taken at this time averaged about 30 ounces in 24 hours.

Her temperature ranged between 96·4° and 98° F., but was subnormal for the entire period. The approximate averages were as follows:—November, 98°; December, 97·8°; January, 97·5°; February, 97·6°; and March, 97·4°. The pulse, which was poor in quality, was very constant, about 72. The respiration was about an average of 22. The nervous symptoms may be described as some increase of the left knee reflex, much vertical headache, and sleeplessness.

As already mentioned, the operations for the removal of the cyst were performed on April 12th and 16th, 1899, by Mr. G. H. Makins. The patient having been prepared in the usual manner at 9.30 A.M. gas and ether were administered by Mr. Walter Tyrrell; a central vertical incision was made below the ensiform cartilage and through this the lower surface of the liver was explored with negative result as to any secondary cyst. A long exploring needle was now thrust into the liver and at the fourth thrust sufficient fluid was obtained to confirm the diagnosis by the discovery of many hooklets. The central incision was now closed and about two inches of the seventh rib were resected in the right mid-axillary line, the intercostal muscles and both parietal and visceral layers of the pleura were divided and stitched around the opening left by the resection of the rib, leaving the cyst wall apparent On April 16th Mr. Walter Tyrrell gave the anæsthetic at 11.30 A.M. A crucial incision was made into the cyst to the extent of the opening, and from 25 to 30 ounces of lemon-coloured fluid came away. No daughter cysts were present. The hyaline cyst floated free within the cavity and was so friable as to be with difficulty removed by means of ovum forceps. The cavity was six and a half inches across. A large drainage-tube was put right into it and the whole was dressed in the usual manner. The temperature rose until on April 19th it reached 103° and did not become normal until May 9th. An ice cradle was kept on whenever the temperature reached 100° until April 25th. On April 24th I aspirated in the sixth space at the back of the right chest and removed two ounces of highly coagulable fluid. Sloughy pieces of cyst wall continued to come away until a month after the operation. The cyst cavity was prevented from bridging over and closing superficially before it closed deeply by gauze packing and by the drainage-tube being kept in for a long time (it was not removed until June 3rd, 1899). Twice daily for five weeks I syringed the cyst out with solution of creolin (1 in 160) and then introduced some emulsion of europhen in glycerine and iodoform gauze. All dressings were sterilised by steam before use throughout the convalescence. The right chest was strapped from May 12th onwards until the sinus completely closed.

On June 19th the patient left for the seaside and passed from my observation for a month and at the end of that time she was completely cured.

This case appears to be important to record for two reasons. Firstly, it well illustrates that the history of a case of hydatid is often that of a deterioration of health so gradual as to be imperceptible to the patient's friends, but which is measurably demonstrable if a strict record of the patient's powers is taken at intervals. If this deterioration is not arrested, by removal of the cyst, before the patient has become too weak to bear the exhaustion entailed by a necessarily debilitating convalescence the end of such a case, apart from suppuration or bursting of the cyst, must be death after the failure of force has gradually deprived the victim of function by function until the whole gamut has been passed from perfect enjoyment of full energy to a mere

bedridden existence. The second point is of extreme interest physiologically as showing the marked diminution of urinary secretion which follows obstruction to the venous outflow from the kidney by pressure on the inferior vena cava.

Sidcup, Kent.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

TOTTENHAM HOSPITAL.

A CASE OF AN UNUSUAL FORM OF INTUSSUSCEPTION.

(Under the care of Mr. HERBERT W. CARSON.)

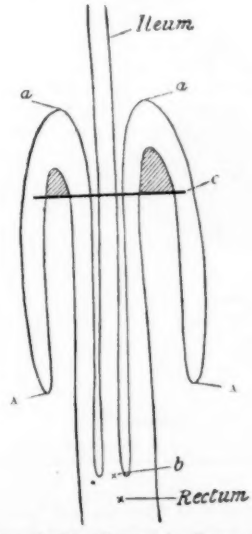
IN infants under the age of six months intussusception is always a very serious condition, even though laparotomy be performed early, but if when the abdomen has been opened it is not possible to reduce the intussusception the prognosis is extremely grave, for whatever method of treatment be adopted a fatal result is almost certain to ensue. Three courses are open to the surgeon: in the first place he may incise the ensheathing layer and may then excise the included bowel; or secondly, he may excise the whole intussusception, performing anastomosis between the healthy bowel above and the healthy bowel below; or lastly, a portion of the bowel immediately above the invagination may be brought up to the surface and an artificial anus made. Inasmuch as shock is the main cause of death after operation for intussusception in infants it is probable that the last method will give the best results. The complexity of the intussusception in the case recorded below is indeed remarkable.

A female, aged five months, was admitted into the Tottenham Hospital on May 14th, 1900, with an abdominal tumour and a history of passing blood and mucus. The child was quite well till the 9th, when she had diarrhœa, passed a little blood, and "the bowel came down." This was replaced by the mother who then obtained medical advice. No tumour was then felt in the abdomen; the child looked fairly well and was not sick. On the 12th the bowels acted and the child vomited after a screaming fit. There was no further sickness before admission to the hospital, but slime and blood were passed per rectum on the 13th and 14th (the day of admission).

On admission the child was quiet, the pulse was fair, and her general condition was good. There was no abdominal distension. A definite small tumour was felt in the left lumbar region above and internal to the anterior superior spine. Per rectum the sphincter was found to be relaxed. The presenting part of an intussusception was felt just above the internal sphincter having two openings, the lumen of the bowel and the mouth of the appendix. As seen per speculum the presenting mass was of a brownish-grey colour. An unsuccessful attempt had been made to reduce the intussusception by injections.

Under chloroform the abdomen was opened a little to the left of the middle line and the intussusception was easily found in the situation of the lower part of the descending colon. It measured some five or six inches in length. At the upper end the ileum entered the intussusception and the lower end presented an almost identical appearance, with the exception that the rectum took the place of the ileum. Attempts at reduction proving unsuccessful the tumour was drawn outside the abdomen and shut off from the peritoneal cavity, and the intussuscipiens was opened by the longitudinal incision recommended by Barker, the ileum and ensheathing layer having been first united by interrupted sutures. The intussusceptum was then cut through *in situ* at the upper part, as it was impossible to bring it through the incision. This resulted in freeing a deeply congested portion of bowel about two inches long having the mucous membrane external. The rectum was then easily reduced and clamped. The intussuscipiens was then found to consist of four layers measuring 15 inches when unfolded. The upper and lower ends of this at the ileo-cæcal junction and at the junction of the colon with the sigmoid flexure were so congested that there was no alternative but to excise the whole of it. This was done and the ileum was united to the rectum over a bone bobbin. The patient died about an hour after returning to bed.

Remarks by Mr. CARSON.—This case seems to be a good instance of those rare cases of intussusception in which "a descending intussusception is associated with an ascending one, the two occupying the same segment of bowel."[1] The accompanying diagram will make the condition clearer, the



a and A were firmly adherent to ileum and rectum respectively. *b*, Ileo-cæcal valve. *c*, Incision *in situ* freeing the small shaded part.

intervals between the layers being left for the sake of clearness. In the present case the descending intussusception was of the ileo-cæcal type, the ascending one being of the colic variety, and thus differs from the case quoted by Mr. Treves[2] in which the descending and ascending intussusceptions were both colic in origin. Mr. Treves also quotes from Leichtenstern who gives eight cases of double intussusception, and from M. Besnier and Nothnagel, in the latter cases the double intussusception being in the large intestine and occurring in cases of chronic obstruction. The only case I can find in recent literature which at all resembles the one detailed above is that described by Mr. W. H. Brown[3] in which an ileo-cæcal (?) intussusception was complicated by a short longitudinal fold of the intussusception on itself. The dilatation of the sphincter so often noted in cases of intussusception was well marked in this case. It would be interesting to know whether in replacing "the bowel which came down" the mother really reduced a mere prolapse of the rectum or pushed back the advancing apex of the intussusception. Taking into consideration the condition of the child on admission it seems improbable that the apex of the intussusception could have been at the sphincter from the 9th to the 14th (six days), though the condition of the bowel itself pointed to a somewhat prolonged strangulation.

ST. MARY'S HOSPITAL, MANCHESTER.

A CASE OF CÆSAREAN SECTION IN A PRIMIPARA ON ACCOUNT OF THE PELVIC CAVITY BEING BLOCKED BY A FIBROID TUMOUR OF THE UTERUS; RECOVERY; CHILD LIVING.

(Under the care of Dr. LLOYD ROBERTS.)

IN the following very interesting case of Cæsarean section the employment of anti-streptococcic serum seems to have

[1] Treves: Intestinal Obstruction, p. 152.
[2] Ibid.
[3] THE LANCET, August 20th, 1898, p. 484.

had a beneficial effect on the septic temperature, but the value of the case would have been much enhanced if an observation had been made as to the presence of any micro-organism in the blood, for if this was merely a case of sapræmia the anti-streptococcic serum cannot be credited with the improvement, while if a streptococcus was really present in the patient's blood we should be justified in thinking that the serum had had an important share in bringing about the recovery. It is only by exact observations in every case that we can arrive at any trustworthy estimate of the value of anti-streptococcic serum. For the notes of the case we are indebted to Dr. J. S. Ross, house surgeon.

A married woman, aged 34 years, was admitted into St. Mary's Hospital, Manchester, on April 30th. The patient had been married 12 months and up to July, 1899, menstruation had been regular every four weeks, the duration of the flow being three days, rather copious in amount, but not accompanied by dysmenorrhœa. She had slight leucorrhœa. In July menstruation ceased suddenly and the patient presumed that she was pregnant. Up to the time of labour beginning she was unaware of anything abnormal. On April 29th, 1900, at 11 P.M. the pains began and on April 30th Dr. J. A. W. Watts of Hyde examined the patient and on his recommendation she was removed to St. Mary's Hospital. On admission the patient had a normal pulse and temperature. The abdomen had the appearance of normal pregnancy at about nine months and the fœtal heart was heard. Per vaginam the posterior fornix was filled with a hard mass which was quite fixed in the pelvis, the os could just be touched very high up in front; only about one and a half inches of conjugate was left. Per rectum the retro-uterine mass was made out to be separate from the bony pelvis; it was in front of the rectum.

On May 1st ether was administered and an incision was made into the abdominal wall from the umbilicus to the pubes. The uterus was incised in the middle line and the placenta was found to be attached to its anterior surface; the membranes were opened, and the fœtus, a living male of about eight and a half months was extracted by the leg. The placenta was now detached, all clots and remains of membrane were removed, and the uterus after being lifted through the abdominal opening was compressed, its edges being brought together with interrupted silk sutures passed through the peritoneum, uterine muscle, and mucous membrane. The pelvic tumour was found to be a fibroid growing from the posterior wall of the uterus; it was so firmly adherent to the rectum and to the sigmoid as to preclude removal; whilst investigating the attachments of the tumour considerable bleeding occurred from its fleshy pedicle and a number of silk sutures had to be used to arrest it. The abdomen was closed with silkworm gut and a gauze drain was pushed from the vagina into the uterus.

The after progress was fairly satisfactory up to May 4th when the pulse ran up to 130 and the abdomen was slightly distended; the lochia, which had never been very profuse, were rather fœtid. On the 7th the patient was still very ill, the abdomen, though distended, still moved with respiration; the bowels had been kept constantly loose with calomel and with turpentine enemas. Anti-streptococcic serum was injected at 6 P.M.; the temperature fell in four hours from 104·2° to 100·6° F. and the pulse from 140 to 130. On the 8th the temperature rose again in the evening to 103·6°, the pulse varying from 130 to 140. One grain of calomel was ordered every four hours. On the 9th the note is as follows: "Condition about the same; the highest temperature at 6 P.M. 103°, and at 10 P.M. the serum was again injected; the temperature fell from 101·2° to 100·8°; the pulse remained about 130. The abdominal wound had been dressed and a little suppuration was noticed along the lowest two sutures." From the 11th to the 20th the patient improved slowly but steadily; no more serum was used, but quinine was freely given; the temperature ran up occasionally to about 101°, but the pulse fell to 120. After May 31st the temperature never rose above 100°, but it was not thoroughly normal throughout the day until the middle of June. Since then the patient has steadily improved. The uterus has shrunk to a hard mass still quite fixed in the pelvis. The child was fed artificially and is healthy.

Remarks by Dr. LLOYD ROBERTS.—Cæsarean section was performed in this case because the pelvic cavity was blocked by a fibroid tumour of the uterus so that the conjugate diameter was reduced to one and a half inches, rendering even cephalotripsy impracticable. The tumour sprang from the posterior wall of the uterus, and it was my intention to remove it at the time of the operation but it was found to be so firmly adherent to the rectum and the sigmoid flexure as to prohibit any further interference. The uterus was not drawn through the abdominal wound until it was opened and emptied of its contents. This procedure allows of more easy manual compression and thus prevents hæmorrhage; it also facilitates accurate suturing of the uterine wall and a thorough cleansing of the abdominal and pelvic cavities. The sutures used were of silk and they were passed through the peritoneum, the uterine muscle, and the mucous membrane. No abdominal or pelvic drainage was adopted, but the uterus was packed with gauze through the vagina. The acute sepsis which occurred was, I think, benefited by the injection of anti-streptococcic serum.

Reviews and Notices of Books.

Leçons sur les Maladies du Sang. (*Lectures upon the Diseases of the Blood.*) Par GEORGES HAYEM. Paris: Masson et Cie. 1900. 8vo, pp. 700, with four Coloured Plates. Price 15 francs.

THE book before us contains a series of 44 clinical lectures by Professor Hayem who is a well-known worker upon the blood and its diseases. These lectures are reported by M. Parmentier and M. Bensaude and many of them have appeared in the French medical journals.

After a preliminary lecture upon clinical instruction and another suggested by the death of M. Pasteur upon the importance to the medical profession of the work of that eminent investigator, Professor Hayem commences the subject upon which he is more strictly engaged by a lecture on intravenous saline injections. He deals with transfusion more particularly in relation to cholera, but other infections in which it has been looked upon as useful are also mentioned. He figures and describes a simple apparatus devised by his pupils M. Hallion and M. Carrion. The next subject dealt with is entitled Considerations upon the Origin of Serum-therapy, but Professor Hayem's treatment of this important matter is somewhat disappointing.

In Lectures IV. to VIII. the examination of the blood is described. The author obtains sufficient blood by pricking the finger and letting the blood drop into a small sterilised glass vessel which holds from 2·5 to 3 cubic centimetres. The mode of flow, the characters of the blood as a whole, its coagulability, and the characters of the clot and serum are carefully noted. The methods of fixing and staining blood films are next given. Long ago Professor Hayem divided the leucocytes into (1) the translucent and colourless mononucleated; (2) the opaque and coloured mononucleated; (3) the polynucleated; and (4) the coarsely granular white globules, and he prefers this classification to that of Ehrlich. Among the red cells much importance is attributed in this book to the so-called "hæmatoblasts" in the pathology of some blood diseases.

A very full consideration is given to the subject of chlorosis in Lectures IX. to XVII. The relations of this disease to tuberculosis, Bright's disease, and gastropathies are described in detail. Some curious cases of chlorosis are also related in which death took place through obliteration of the pulmonary artery. The discussion on the nature of chlorosis adds little to our present very imperfect knowledge of this subject. Professor Hayem divides its treatment into (1) rest, (2) gastric treatment, and (3) suitable iron preparations. He believes in the use of small doses of iron and recommends the protoxalate, the daily dose not exceeding from 15 to 20 centigrammes.

The eighteenth lecture deals with Progressive Protopathic Pernicious Anæmia. The characters of the blood in this disease are extreme deglobulisation, irregularity in the diameter of the red cells, and diminution in the number of

hæmatoblasts. The author inclines to the view that the poison which leads to the changes in the blood must be of gastro-intestinal origin. He doubts whether remissions really occur in true pernicious anæmia although their existence is very generally admitted.

Symptomatic anæmias are very fully discussed in Lectures XIX. to XXX. and there are abundant clinical illustrations. The thirty-first lecture is upon Phlegmasia Alba Dolens and Intra-vascular Coagulation. Professor Hayem describes in the thirty-second lecture a case of Pseudo-leukæmia with Splenomegaly. He distinguishes this disease from splenic anæmia as the patient did not become anæmic. Two lectures upon leukæmia follow and then one in which a remarkable case of multiple symmetrical lipomatous tumours apparently simulating enlarged glands (*"l'adenie à forme lipomateuse"*) is related. Lectures XXXVI. to XXXIX. are devoted to diseases which produce hæmorrhages and Lecture XL. to Scurvy. Professor Hayem looks upon the lesions of purpura as the consequence of a toxæmia analogous to that produced artificially by certain injections of foreign blood. He also regards paroxysmal hæmoglobinuria as the outcome of a toxæmia in persons already suffering from chronic alteration of the blood such as is produced by syphilis.

An interesting case of Methæmoglobinæmia is related in Lectures XLII. and XLIII. It occurred in a woman in whom abortion was criminally induced. The changes in the blood were profound. Anuria eventually supervened and the patient died partly as the result of uræmia.

The last lecture deals with a case of Cyanosis due to Inversion of the Viscera, including Malformation of the Heart.

These lectures by this distinguished French physician are abundantly illustrated by clinical cases. They provide some very interesting reading and contain much practical information.

Injuries to the Eye in their Medico-legal Aspect. By S. BAUDRY, M.D., Professor in the Faculty of Medicine, University of Lille, France. Translated from the original by ALFRED JAMES OSTHEIMER jun., M.D., of Philadelphia, Pa. Revised and Edited by CHARLES A. OLIVER, A.M., M.D., Ophthalmic Surgeon to the Philadelphia Hospital. With an Adaptation of the Medico-legal Chapter to the Courts of the United States of America by CHARLES SINKLER, Member of the Philadelphia Bar. Philadelphia: F. A. Davis and Co. 1900. Pp. x.-161. Price 5*s.*

THOUGH possessing a long title with an imposing array of names on the title-page this is a small book on a rather important subject. In England injuries of the eye are of frequent occurrence in many occupations, yet we do not read in the public journals of actions brought against employers for such lesions, or at least such actions seem to be quite exceptional. The workmen engaged in dangerous trades take few precautions against such injuries, frequently treat them by rough and ready methods, and accept the consequences with resignation, yet the effects produced even when the injury is comparatively slight are often serious and in certain forms of penetrating wounds may easily lead to blindness. The successive chapters of the work deal with Traumatic Lesions of the Ocular Adnexa, Traumatic Lesions of the Globe of the Eye, and Simulated Affections of the Eye. An interesting case is given of an hysterical patient who introduced numerous fragments of glass under the conjunctiva at different times with a view of obtaining damages, and the author records various cases that have occurred under his own observation of lesions due to the entrance of lime into the eye, of the penetration of the globe by fragments of steel or iron, and of contusions of the eye. The introduction of the Acts rendering employers liable for injuries occurring to workmen in the discharge of their ordinary duties is likely to lead to legal proceedings, just as it has actually been found that the promulgation of the insurance laws of 1884 in Germany has caused an increase of 25 per cent. in the number of ophthalmic cases attributed to accidents in the one district of Saarbrück, while the ratio of the period of duration of treatment in such cases has increased some 30 per cent., the number of cases of ordinary affections having remained exactly the same. Statements such as these, which are made upon good authority, are highly suggestive. In the chapter on Medico-legal Expert Testimony Mr. Charles Sinkler discusses the nature of expert evidence in general, especially in regard to medical experts, and gives some cases in which expert testimony relating to the eye has been offered, also the procedure adopted in the United States in the examination of experts, and concludes with a summary of the changes proposed to be made in the law. These changes are the formation of a stricter definition of expert capacity and some limitation of the number of experts to be summoned in any case; the selection of experts by the court on the nomination of the parties; the abolition of the hypothetical question; the summoning by the judge of an expert to act as assessor of the testimony; and lastly, the payment of expert witnesses out of the public treasury at least in the first instance. The value of one or of both eyes must vary under different conditions, as the presence or absence of antecedent disease, but no details are here given of contested cases. The translation is good and the book is well worth reading.

The Principles of Bacteriology. By Dr. FERDINAND HUEPPE, Professor of Hygiene in the University of Prague. Authorised translation from the German by Dr. E. O. JORDAN, Assistant Professor of Bacteriology in the University of Chicago. Chicago: The Open Court Publishing Co. London: Kegan Paul, Trench, Trübner, and Co. 1899. Pp. x.-467. Price 9*s.*

THIS translation of Professor Hueppe's well-known "Naturwissenschaftliche Einführung in die Bakteriologie" brings a valuable and instructive work within the reach of that large section of English medical men who lack the ability to read somewhat difficult German. The translation is an admirable one—clear, idiomatic, and vigorous—well suited, in fact, to the character of the work. We have compared it here and there with the original German and we find it accurate as well as clear. Dr. Jordan has performed a difficult task in a most praiseworthy manner. Besides the mere translation he has added a few footnotes where the advance of our knowledge since the original work was published (1896) has confirmed or modified the author's propositions.

Professor Hueppe's fame as a hygienist and bacteriologist is world-wide; he is, moreover, a scientific man of a keenly logical and argumentative turn of mind, well versed in the systems of philosophy. He is well known as a strong opponent of certain of the doctrines maintained by Koch, Behring, and others of the same school, notably of the doctrine of the "specific" action of bacteria in producing disease in the sense in which those writers use the word. He is a good fighter and a hard hitter, with a remarkable power of setting forth his own views with clearness and precision. It is pleasant to meet with a writer on such difficult and almost transcendental topics as those here dealt with about whose views and meaning the reader is never in any doubt. Verbosity and ambiguity are equally absent, and it is no small credit to the translator that he has secured so much of the pith and point of Professor Hueppe's style. We are by no means able to agree with the author in all his conclusions, but the book is instructive, refreshing, and delightful—an admirable corrective to ordinary bacteriological text-books which are for the most part too exclusively founded on the school of Koch. Probably the truth lies somewhere between

Hueppe and Koch, but no one can read without pleasure and profit the plain and logical exposition of the matters at issue set forth in this book, nor can it be denied that Professor Hueppe makes out a very good case for himself. The first half of the book is, as it were, introductory; it describes the structure of bacteria and their vital phenomena in an adequate manner and gives a brief description of the chief pathogenic organisms. This part of the work calls for no special remark save perhaps that the writer, as is well known, uses the term "spore" in a sense wider than that commonly accepted. The spores which he speaks of as occurring in sarcinæ and his "arthrospores" generally are such different structures from the endospores that the term is usually regarded as a misnomer. Numerous excellent illustrations are introduced into the text. But by far the most important part of the book is the second half, dealing with the causes and the prevention of infectious diseases and with the problems of immunity. Here the author is seen at his very best, and we cannot but admire the forcible logic and the dialectical ingenuity which he displays, even though we may dissent from some of his conclusions. It is impossible to expound in the short limits of a review the teaching which he inculcates, but the gist of it is this, that disease is a process resulting from several varying causes, and that on dynamical principles the most important cause is to be sought in the structural—even the molecular—idiosyncrasies of the patient rather than in the invading bacteria, which are at the most to be regarded as "liberating causes." For the practical physician this point of view, though largely accepted in tacit fashion, needs emphasis and elaboration such as are here bestowed. Nevertheless, we think that the view may be pushed too far, for there is undoubtedly a sense in which given species of micro-organisms are the "specific," even if only the "liberating," causes of given diseases. In particular we would dissent from some of the criticisms passed upon the employment of anti-diphtheritic serum, for it seems probable that such toxic effects as occasionally follow its use are due to the fact that it is "horse" serum and not "anti-diphtheritic" serum. We would, however, repeat, in conclusion, that the book is one which should be read by everyone interested in scientific medicine, for it is not merely an exercise in dialectics but a most valuable contribution towards a rational and practical system of treatment and hygiene.

The Struggle for Success. By ARCHIBALD STODART-WALKER. London: Grant Richards. 1900. Pp. 307. Price 6s.

MR. STODART-WALKER has produced a very readable book and the subject which he has undertaken to treat is of commanding interest and importance. His method is, as the title of his book suggests, to apply to the investigation of social conditions a process of inquiry modelled upon the theory of the struggle for existence. The analogy is very manifest when once pointed out. In both cases there is competition between individual and social ends modified by the dependence of the individual upon society for the accomplishment of his personal desires. The struggle, therefore, is not, and cannot become, an internecine conflict and the investigator's success consists in tracing out the boundary line in which conflict and coöperation meet. The brilliant success with which Darwin carried out this task of delimitation in the region of biology has suggested to the present author an analogous survey of the action and reaction which take place between the individual and his society in the common pursuit of social success.

Mr. Stodart-Walker is careful to disclaim for his work the nature of a system or of an exhaustive criticism. Its deficiency in this respect amounts, we think, to a serious shortcoming. Its strong point is undoubtedly the genuine eloquence of its best passages. For example, the description (p. 87) of the man who is mentally sane is admirable from this point of view. His freedom from prejudice, his willingness to judge questions on their merits will, says Mr. Stodart-Walker, with truth and point, "make him cautious and yet frank, honest and yet sympathetic; it will enable him to give things their due proportion, permit him to draw the factors of life in their proper perspective. ..... He will have definite aims but catholic sympathies, not a sympathy which approves of false motives, illiterate aims, vague and dangerous impulses, but which understands the limitations of human knowledge, human insight, and human training. With gentle satire he will confound the pompous asserter of plausible fallacies, with generous humour he will paint the inconsistencies of the illogical mind, but when necessary state without fear of blame or shame the point of view as it appears to him." That was well seen and it is well depicted. Another respect in which Mr. Stodart-Walker shows an elegant taste is in his borrowings. His quotations, which are not few, are almost all embellishments of his text, and if he had been at a little pains to purge his work of a few grammatical blemishes, such as the substitution of "will" for "shall" in the first person future—which occurs with distressing frequency—the splitting of the infinitive, and other vices of careless writing, his book would be entitled to rank among the pleasantest of books on social science.

But the work has been too hurriedly done for a great boo and the marks of hurry are even more manifest in the substance than the form. Crude ideas appear again and again and points of difficulty are slurred over in a manner which it is not in our judgment possible to excuse. For example, the question of drink is one which the author could not properly evade and the excuse (p. 51), "It is far too elaborate a question to be studied here," is really no excuse at all for shirking it. Precisely because it is elaborate—tangled by the ebb and flow of incessant but fluctuating discussion—it needed to be studied by the aid of his *organon*. Even when Mr. Stodart-Walker is on the most assured ground he argues for his point with a lack of tolerance that in a mind so disengaged as his must certainly be attributed to insufficient consideration of the view antagonistic to his own. This is very noticeable in his discussion of religious belief where he allows himself to use about the late Mr. Gladstone the language of an ungarnished contempt which makes unpleasant reading (p. 104). It is not possible to speak of this book in unqualified language, but upon the whole we think that the task which is here attempted still waits to be achieved.

JOURNALS.

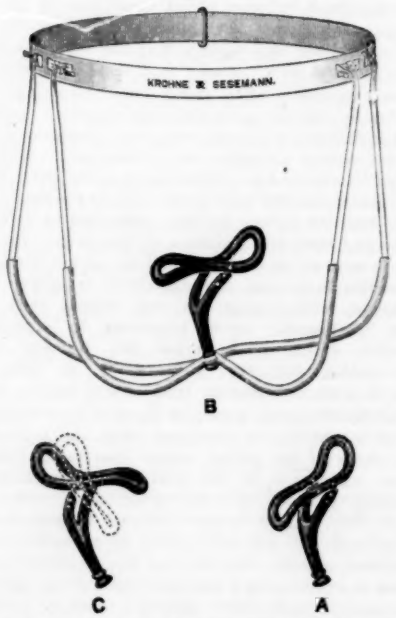
The Veterinarian for September is full of interesting articles, although there is still room for improvement on the clinical side. Papers written by Sir T. Lauder Brunton, Dr. C. S. Sherrington, Dr. P. H. Pye-Smith, and Mr. Treves are given *in extenso*. Half a dozen clinical cases are reported by two Irish practitioners, these including one of fractured pelvis, one of ruptured auricle, and one of ruptured diaphragm, all occurring in horses. Under the heading of "The Month's Progress" are extracts from continental journals and under "Current Topics" is given a short description of the work to be done by the new Irish college. Although for the first few years this institution will doubtless have many drawbacks there is every probability of its ultimate success, and with such an enthusiast as Professor Mettam as the first Principal its progress seems assured.

The Quarterly Journal of Microscopical Science. Edited by E. RAY LANKESTER, F.R.S., ADAM SEDGWICK, F.R.S., W. F. R. WELDON, F.R.S., and SYDNEY J. HICKSON, F.R.S. With Lithographic Plates and Engravings on Wood. London: J. & A. Churchill. September, 1900. Vol. XLIII. Part 4. Price 10s.—The articles contained in this part are: 1. Hippolyte Varians: a Study in Colour Change; by F. W. Gamble, D.Sc., Owens College, Manchester, and F. W. Keeble, M.A., Caius College, Cambridge; with five plates. In this interesting paper the remarkable faculty possessed by a species of prawn of changing its colour in accordance with the prevailing tint around it has been carefully observed. Specimens of this prawn are shown *in situ* clinging to various forms of seaweed and so closely simulating the colour of the weed, whether green, brown, or red, that close inspection is required to recognise their position. The rate of change is slow and takes place even in the dark, though much more rapidly in light. At night the general tint is blue; as day breaks and proceeds other colours appear, so that there is distinct periodicity due to the action of light; variations of temperature and electrical currents also induce changes of colour in these animals. The second article is by Edwin S. Goodrich, M.A., Aldrichian Demonstrator of Comparative Anatomy, Oxford, and is devoted to the consideration of the Nephridia of the Polychæta. It is illustrated by six plates. The author describes the nephridia of Alciopinæ, Phyllodocinæ, Syllidæ, Amphinomidæ, and Polygordiaceæ, and gives a general *résumé* of the most important facts described in this part and in two papers published in preceding numbers of the journal. 3. The last article is entitled "Nouvelles Observations sur les Peripatus de la Collection du Musée Britannique," par E. L. Bouvier, Professeur au Muséum de l'Histoire Naturelle de Paris. The title and contents of the forty-third volume conclude the part.

New Inventions.

A NEW PESSARY.

THE new instrument which I wish to introduce to the profession is our old friend "Hodge" in a new, and I deem an improved, guise, hinged, and with a stem. That there exists no satisfactory pessary for prolapsus uteri in its worst form or for ante-version or ante-flexion is, I believe, incontrovertible. In cases of prolapsus uteri "cup and stem" pessaries, temporarily convenient, are in the end failures. Probably the ulcerated os has been caused or aggravated by their use; besides, they mostly retain foul secretions, become merely vehicles for absorption of septic matter, and at the best are uncomfortable in use. Again, most of them subject the uterus and appendages to violent shock in any undue movement of the body, whilst the bladder and rectum are both, in many mechanical appliances, interfered with. In my instrument I claim: 1. Simplicity in construction and, therefore, that it is easy in application and practically aseptic. 2. The hinge action—in deviation about from 75° to 90°—simulates and acts harmoniously with the swing of the broad ligament and thereby lessens or annuls the danger of shock to the organs on impact upon the stem. 3. Neither bladder nor rectum are interfered with, and the dragging down and prolapse of the former are absolutely prevented. This hinge action in the ante-version and ante-flexion pessary is checked at a certain angle so that no pressure can act on the bladder; and in the pessary for retro-version or retro-flexion the same holds good, and the driving down of the posterior limb upon the rectum is avoided, pressure acting instead along the stem and therefore upon the rubber supports and waistband. 4. Although I have for the present adopted "Hodge" as a model I shall probably modify its shape, as with the forked and hinged stem I can, if necessary, adopt a ring pattern. The whole apparatus can be self-applied by the patient with very little instruction from the medical attendant, and it can be easily cleansed. Old ulcerations induced by friction from badly-fitting pessaries or from external violence are soon cured, as by its use all pressure in the neighbourhood of the ulceration is



A, Ante-version pessary ready for insertion. B, Ante-version pessary *in situ*. C, Retro-version pessary: range of hinge movement.

removed. The size of the pessary, its length of stem, &c., can, of course, be modified to suit each particular requirement. My instructions and ideas have been carried out in a most satisfactory manner by Messrs. Krohne and Sesemann who have spared no trouble in order to meet my wishes.

HUGHES R. DAVIES, L.R.C.P. Lond., M.R.C.S. Eng.
Bow, E.

DIPHTHERIA IN LEICESTER.—The outbreak of diphtheria in Leicester continues to increase, 73 fresh cases and nine deaths being notified the week before last, as against 58, 54, and 39 notifications for the three preceding weeks, the resultant mortality in the latter case being 13, nine, and nine respectively. At Tuesday week's meeting of the Leicester Town Council the Sanitary Committee reported that 444 cases of the disease had been notified during the quarter, compared with 212 for the June quarter. The mayor, who is chairman of the committee, said that Mr. H. G. H. Monk, the medical officer of health, had visited every case of diphtheria which had been notified and had given it as his opinion that there was no cause for the disease, but that it spread from one child to the other. The mayor added that the Sanitary Committee were working in harmony with the School Board in the matter and strict injunctions had been given to see that children coming from a house where there was diphtheria should stay away from school for a month.—Councillor Hincks said he understood that one of the most fruitful sources of spreading diphtheria was the children's love of cats. That being so it might be well to get rid of the cats.—Councillor C. F. Bryan, M.R.C.S., was afraid that if they got rid of the cats mice would spread the disease. Another cause of spreading the disease was to be found in the slates used by the children at school. The children licked their fingers for the purpose of cleaning their slates and in that way the disease was often communicated.

THE LANCET.

LONDON: SATURDAY, OCTOBER 6, 1900.

IT is somewhat surprising that bacteriology should so far have done but little to advance our knowledge of those common infectious fevers which are constantly breaking out in epidemic form in our midst. Many have been the efforts made to discover the specific germs of measles, rötheln, small-pox, and scarlet fever, but so far without success. The discovery of the germ of scarlet fever has been announced so often that every new claimant must be prepared to be received with a considerable amount of scepticism. Most of the germs which have been put forward as the microbes of scarlet fever have been described as streptococci, the principal exception being a rod-shaped bacillus found by EDINGTON. Streptococci are certainly very frequently present in the exudation on the throat and in secondary lesions such as otitis media, and recently they have been found by COURTOIS in the urine of patients suffering from scarlet fever; but there has been nothing distinctive about the streptococci ordinarily met with in scarlet fever and it has been practically impossible to differentiate them from the streptococcus, pyogenes and the streptococci of erysipelas. The organisms described by KLEIN in connexion with the now historical so-called "Hendon cow disease" were also not to be distinguished from streptococcus pyogenes. The whole matter was dealt with at great length by Professor CROOKSHANK in his reports to the Agricultural Department of the Privy Council, and the arguments against KLEIN'S streptococcus as the cause of scarlet fever seemed to be overwhelming. There are still, however, some who look upon KLEIN'S streptococcus as the specific microbe of the disease. Dr. M. H. GORDON in the twenty-eighth annual report of the medical officer of the Local Government Board refers to the streptococcus scarlatinæ and says that it is acknowledged to be probable that those persons alone who have this streptococcus in their throats are able to infect others. As far as we are aware, however, no proofs have ever been brought forward that the so-called streptococcus scarlatinæ is capable of producing scarlet fever. We drew attention nearly a year ago[1] in these columns to the preliminary announcement by Dr. WILLIAM J. CLASS of Chicago of his discovery in cases of scarlet fever of a diplococcus having a peculiar morphology which he believed to be the long-looked-for specific germ of the disease. Dr. CLASS'S further communication on the etiology of scarlet fever which appeared in THE LANCET of Sept. 29th (p. 927) is of such great importance as to demand some special notice.

The microbe described by Dr. CLASS has a special morphology which cannot be said of the previously described streptococci. When grown on a special medium it assumes a form resembling a very large gonococcus. The special medium is earth agar, which is glycerine agar to which is added about 5 per cent. of black garden earth previously sterilised by discontinuous heating. This form is not constantly met with, but it can always be obtained by successive transplantations on earth agar. The biscuit-shaped appearance is best seen in lightly-stained specimens. In very old cultures grown under favourable conditions the microbe has the appearance of an enormous coccus having a slightly cupped contour, the dividing line between the two portions being very indistinct in the more deeply stained specimens. Smaller organisms arise by division of the large diplococcus and may group themselves together. While the form is very constant when the germ is grown on the special medium it is capable of very great variability when grown in different media. Sometimes it forms chains, sometimes clusters, sometimes resembling a streptococcus, sometimes a staphylococcus. Its one distinguishing morphological feature appears to be its diplococcus form when grown on earth agar. Long chains have never been obtained by Dr. CLASS, in an experience of hundreds of cases, from uncomplicated cases of scarlet fever. It is quite possible, as Dr. CLASS suggests, that the same organisms have been previously observed and described by some as streptococci and by CRAJKOWSKI as diplococci, but to find a germ in a certain disease and to establish its relation to that disease are two very different matters.

Dr. CLASS next maintains that this diplococcus is constantly present in scarlet fever. He has found it in 300 successive cases and his findings have been confirmed by GRODWOHL and JAQUES. He says that he is absolutely certain of his ability to demonstrate the presence of the diplococcus in the blood, throat secretions, and scales of every typical case of scarlet fever. Assuming the accuracy of these observations that the organism is a constant feature of cases of scarlet fever we have next to be satisfied that it is the cause of the disease. To demonstrate this in a satisfactory manner is a very difficult matter. It is not possible experimentally to inoculate a human subject with a culture of the diplococcus with the object of seeing whether it will produce scarlet fever. We have at present no certain way of recognising scarlet fever, if such exists, among the lower animals. There is nothing characteristic in the morbid anatomy of scarlet fever in the human subject, and we are still less in a position to affirm from post-mortem examination of an animal that it presents characteristic lesions of scarlet fever.

What Dr. CLASS has established in the case of the lower animals, however, amounts to this—that the organism is pathogenic to mice, swine, and guinea-pigs. Mice are most susceptible, death as a rule following within 12 hours after subcutaneous injection of a small quantity of a virulent culture. Swine are unaffected by subcutaneous injections except when a very large quantity of a virulent culture is used, but intra-abdominal injections are followed by grave symptoms and even death. Intravenous injections, however, are the most certain. Guinea-pigs are killed by intra-abdominal injections of virulent cultures. The diplococcus can, as a rule, be recovered from the bodies of the affected animals.

In white swine Dr. CLASS has succeeded in producing by

[1] THE LANCET, Nov. 18th, 1899, p. 1385.

intravenous injections of virulent cultures of the diplococcus a disease resembling scarlet fever. The injections produce malaise and rise of temperature within a few hours. In three or four days there is reddening of the skin followed after a week or two by profuse scaling. Sometimes the eruption is papular rather than erythematous. A considerable number of experiments were made with the same result.

We do not attach very much importance to the statement that the post-mortem appearances resembled those of scarlet fever. Similar appearances were observed by KLEIN as the result of inoculation with cultures of the Hendon streptococcus. Nephritis and enlargement of the spleen cannot be said to be peculiar effects of the scarlatinal poison. Nor can we draw any important conclusion from the fact that the disease inoculated in swine and mice appeared to be of a contagious nature—healthy animals placed with inoculated animals contracting similar affections — for this is a probable result in the case of any inoculable disease.

The observations made as to the influence of the blood of patients just recovering from scarlet fever on the activity of the germ are of interest. The blood inhibited to a certain degree the growth of cultures, and mice treated with subcutaneous injections of blood serum survived longer after inoculation than the other animals. These results lend further support to the contention that the diplococcus is the germ of scarlet fever. It would be still more convincing if it were found that the blood of patients suffering or recovering from scarlet fever had an agglutinating effect upon homogeneous cultures of the diplococcus.

Two further observations are brought forward by Dr. CLASS in conclusion. The first is that the diplococcus is found not only in cases of undoubted scarlet fever but also in cases of scarlatinal sore-throat and in cases of surgical scarlet fever. If, therefore, the diplococcus is the germ of scarlet fever, the nature of these hitherto debateable diseases is established. The second is that the diplococcus will grow in milk without producing any visible change in it. Many epidemics of scarlet fever have been connected with milk, as was the outbreak in Marylebone, which was traced to the milk distributed from the dairy farm in Hendon. It is accordingly in the highest degree probable that the germ of scarlet fever does not sensibly alter the appearance or the character of milk. The fact that the diplococcus does not alter milk in which it grows is not only consistent with, but also in favour of, the view that it is the specific germ.

Although it cannot be said to be proved absolutely that the diplococcus discovered by Dr. CLASS is the specific germ of scarlet fever all the evidence so carefully collected points in this direction. The streptococcus recently described by ADOLPH BAGINSKY and PAUL SOMMERFELD before the Berlin Medical Society and in the columns of the *Berliner Klinische Wochenschrift* as constantly present in the throat secretions and blood of patients suffering from scarlet fever may possibly be the same microbe as that discovered by Dr. CLASS, but Dr. CLASS has pushed his investigations much further than have the German observers, and we trust that he will be able successfully to complete the work which he has so far advanced.

WHATEVER success may attend the appeal of the late Government to the nation on the questions of war and of the future of South Africa it will do well to take notice that equally great questions within the sphere of domestic politics will demand the attention of Parliament in the immediate future. Not only so, but the credit of the new Ministry (however it may be constituted) and its claim to the gratitude of the nation and of posterity will depend as much on its attention to these questions affecting our own people as on its foreign policy. Indeed, it is not too much to say that a foreign policy which absorbed all the attention of the country and of the Parliament and allowed no time for consideration of both the physical and moral health of the people would stand self-condemned. Of such questions none can exceed in importance that of the housing of the working classes. Much admirable work has been done of late years by the London County Council and by other bodies in multiplying open spaces in the metropolis and other large towns. But this is of little avail unless the living space within and about houses—that is, the space necessary for health and morals—can be increased. The open spaces are available as playgrounds only on holidays and at rare intervals and can tell comparatively little upon health, but an increase in the cubic space allowed for each member of a household in living-rooms and bedrooms would effect immediately a reduction of mortality both from tuberculosis and the ordinary epidemics and would bring an enormous accession to the brightness and pleasure of life among the poor. This may seem a trite and common-place object to occupy statesmen and politicians. But he is a superficial observer who thinks it so and there are evidences on all sides that it is one the furtherance of which is exercising the mind of the nation.

During the late session the Government showed some sense of the importance of the subject by bringing in, and passing, a Bill the main provision of which was one to enable local authorities to establish or acquire lodging-houses for the working classes outside their respective districts. The Manchester City Council lately adopted a report for the purchase of 237 acres for this purpose at a distance of four miles from that city. The Northamptonshire County Council under the Housing of the Working Classes Act (1890) recently agreed to sanction the adoption of Part III. of that Act by the Brixworth District Council in respect of a Northamptonshire village named Spratton. Towering high above all parties and the mere politics of parties are the words of His Royal Highness the PRINCE OF WALES: "There is no question at the present time of greater social importance than that of the housing of the working classes. ..... I hope the Legislature will be able to deal with the case of those who are responsible for insanitary property." The nation cannot but feel grateful to the PRINCE OF WALES for boldly giving utterance to such sentiments, which are worthy of him, as they would have been worthy of his illustrious father. The Church Congress, too, has shown

its sense of the gravity of this subject by finding a place for it in its proceedings at the recent meeting at Newcastle. The Rev. J. W. HORSLEY was the principal speaker and he adduced some of those terrible statistics that disturb the complacency with which we are too apt to regard our boasted civilisation. In his civil parish 124,000 people live on less than a square mile. There are nearly half a million persons in London in whose case home consists of one room; of 4575 one-roomed tenements in Spitalfields 1400 are occupied by from four to seven persons. He adduced other instances, such as the following: 17 persons in one room in Clerkenwell; 3000 persons to an acre through the agency of industrial dwellings in one part of Whitechapel; whole families in workhouses because the fathers, though in work, cannot find rooms; the large profits of slum landlords, illustrated by a six-roomed tenement in a city slum inhabited by six families at 6*s.* a week each, equal to £93 12*s.* per annum for a cottage in an alley, and much more to the same effect. To expect purity and health and temperance in such conditions is to expect to gather grapes of thorns or figs of thistles.

It is more easy to depict the evils of such a state of matters than to assign blame. But surely there is blame in all directions; ARTHUR HELPS thought that much was attached to architects and builders, and declared that they had made less advance since the time of the Romans than any other class. The slum owners are amongst the principal culprits; we have seen how exacting they are in the matter of profits and we know how careless they are apt to be in respect of the sanitary conditions of their property. The State has been too fastidious in regarding the rights of the property owner and too slack in insisting on his duties. It seems a mere truism to say that a house should be safe to live in both as regards its size and its appointments, and a matter of course to require that the landlord should be punished for any gross defect in this respect. Instead of this much of the legislation that has been passed has been of such a nature as to pay the landlord far above its value for his rotten and defective property. The best remedy for this will be in the more severe application of scientific and medical tests of the sanitary value of such property. This will enable sanitary authorities to buy it and to deal with it at such prices as will be consistent with justice to the poor and to the taxpayers as well as to the owners. Legislation in this direction will do little good if it is not accompanied by other legislation that will help the poor to save themselves. Society and religious bodies are becoming alive to their own risks and responsibilities in this matter. Society is like an organism: "if one member suffer, all the members suffer with it." We cannot divest ourselves of interest in slum-life by the exercise of any amount of selfishness. No luxury of the upper ranks of Society will save them in the long run from the dangers arising from the condition of misery and squalor of the poverty-stricken. Still, men must work out their own salvation. The poor must be helped, but they must help themselves. It seems monstrous that a working man should have to spend a third or a fourth of his wages in house-rent for one or two rooms. But it is equally monstrous that he, sometimes assisted by his wife, should spend the same proportion in beer or spirits. This regrettable fact is partly attributable to the very discomfort of his domestic conditions; but the tendency nowadays is to flatter the working man by assigning all his intemperance to his misfortune and none to his fault. This is another extreme. What is wanted is a little common sense all round, including some wholesome legislation that will discourage drunkenness and divert to better uses some of the £162,000,000 spent yearly in cultivating it. Canon MOORE EDE said at the Church Congress that what is wanted is not so much to build houses as to raise the standard of those who lived in them. The Mayor of Newcastle, too, made a very terse remark—namely, that well-to-do artisans may be left to take care of themselves. They are as capable of doing so as any other class of the community. The State and sanitary authorities have enough to do in catering for the really poor and this must be done without harm to their self-dependence and self-respect. Such problems as those which we have indicated above are most urgent and yet most difficult, and not the least satisfactory bearing of the ending of the war in South Africa is that it may enable proper attention to be given to their solution.

A RECENTLY issued Parliamentary paper supplies us with information upon certain points of interest in connexion with the working of the Inebriates Act of 1898, and serves to remind us that the House of Commons which has been dissolved did two years ago pass a small Act dealing with one of the phases of the great question of the prevention of drunkenness in this country. Under this Act habitual drunkards convicted on indictment of crimes committed through "drink" and serious enough to warrant imprisonment can be sent to a State inebriate reformatory or to any certified inebriate reformatory willing to receive them instead of being consigned to penal servitude or hard labour. The return before us, however, informs us authoritatively that "no State reformatories have been instituted or are to be instituted," so that criminal drunkards of the more serious type are left to undergo purely penal treatment unless there is a reformatory voluntarily instituted by charitable individuals or by public local bodies willing to receive them. This omission of the Government to aid in giving effect to a salutary measure passed during its tenure of office can hardly be due to the ample accommodation which it found in course of being provided from other sources. It is a matter of notoriety that there has been considerable difficulty in finding accommodation for those habitual drunkards who should have been sent to certified reformatories after repeated convictions before magistrates for minor offences, and it is in consequence of this known difficulty that the number of convictions under the Act figuring in the report before us does not enable us in any way to estimate its possible future usefulness. We learn, however, from the same document that a number of reformatories are promised and that various localities propose to contribute to them or to others, the rate of payment apparently deemed sufficient being £1000 for the right to seven beds, with an additional weekly charge of 3*s.* 6*d.* for each case taken in. As this gives about 6*s.* per head per week for the board, lodging, supervision, medical attendance, and all else that is necessary for each inebriate under treatment, assuming that the subscribing locality makes full use of its rights, it is to be

presumed that private benevolence will still have to help largely in the charitable work of reforming the drunkard. It is not, however, to past measures but to the possibility of future legislation that we should turn our eyes with a general election proceeding and with the promises of future members of a reorganised Cabinet published broadcast in their electioneering addresses and the reports of their speeches. We have already on two occasions[1] expressed our opinion that there rests a duty upon those responsible for the government of the country to give effect on an early occasion to the work of the Royal Commission which, under the presidency of Lord PEEL, spent three years in inquiring into the administration and operation of the laws relating to the sale of intoxicating liquors.

There is every probability that the Unionist party will return to office with a majority strong enough to enable it, independently alike of those interested in the liquor traffic and of its extreme opponents, to bring in and pass a thorough and effective measure of reform for the benefit of the whole community. Such a measure would hand down to posterity the names of those responsible for it adorned with a fame as lasting and as honourable as that earned by the successful and courageous conduct of an arduous and memorable war. There is, however, nothing in the addresses and speeches to which we have alluded to indicate that such a measure is contemplated, and the omission is ominous. That such an omission should be made out of deference to the wishes and voting powers of those engaged in a trade the abuses and not the usefulness of which it is desired to check is not to the credit of honourable politicians. The Unionist party occupies a position strong enough to enable it to avow and to carry out any intentions that it may have, and any want of courage shown either now or hereafter is likely to be long remembered by the enemies of those who exhibit it, while it is not likely to be forgotten even by their friends.

Annotations.

"Ne quid nimis."

THE HUXLEY LECTURE.

ON page 985 will be found the full text of the Huxley Lecture on Early Researches Leading up to the Antiseptic System of Surgery delivered by Lord Lister on Oct. 2nd at the opening of the winter session of Charing-cross Hospital Medical School. The proceedings took place in St. Martin's Town Hall, not far from the hospital, Mr. J. H. Morgan, the treasurer of the school, being in the chair. This lectureship was founded after the death of Professor Huxley out of a sum raised by the Medical School and its friends to commemorate the fact that Huxley received the whole of his medical education at Charing-cross Hospital. The lecture is a biennial one and Lord Lister's is the third of the series, the first having been delivered by Sir Michael Foster in October, 1896, and the second by Professor Virchow in October, 1898. It will, therefore, be seen that the Charing-cross Hospital Medical School has so far been singularly fortunate in being able to have representative men, pre-eminent in their several departments, as the speakers on these occasions. At the conclusion of the lecture a vote of thanks to Lord Lister was proposed by Dr. T. H. Green, and seconded by the Rev. Prebendary J. F. Kitto. In acknowledging the vote of thanks Lord Lister expressed the pleasure it gave him, now that he had retired from surgical practice, to be again speaking among colleagues.

[1] THE LANCET, July 29th, 1899, p. 288; Sept. 8th, 1900, p. 743.

FOOD PRESERVATIVES COMMITTEE.

THE members of the Food Preservatives Committee, Dr. Timbrell Bulstrode and Dr. F. W. Tunnicliffe, and Mr. Charles J. Huddart, its secretary, who proceeded last month to Ireland for the purpose of investigating the dairying industry of that country in relation to the use of chemical preservatives, have now returned to town. The inquiries which they made embraced the city of Dublin and the surrounding district and the great butter-making centres in the south and west of Ireland. In the north, time sufficed only for a visit to the county of Cavan, but in that county, as well as in those which were visited in the south and west, large tracts of country were traversed and detailed inspection was made of farms and farm premises and of the several operations which precede the actual despatch of milk to the large creameries and of butter to the markets and factories. The processes of manufacture at creameries and butter factories, as well as at bacon and margarine factories, also engaged the attention of the Committee at one and another place. In Dublin itself, not only were the officials of the Government departments interviewed, but the Committee had the advantage of repeated conferences with Sir Charles A. Cameron, the medical officer of health of Dublin, and with his colleagues. The mass of information acquired as the result both of the visit paid to the continent (especially to Denmark) and of the visit to Ireland just concluded will need collation and summarising with a view to the presentation to the whole Committee of reports on those results, which reports will need very careful consideration before the Committee proceed to draw up their report upon the evidence before them.

RAILWAY MISMANAGEMENT.

EVERY few months, probably whenever the exigencies of space permit the editor to insert them, the columns of the *Times* are invaded by a score of letters complaining of the scandalous discomfort and unpunctuality of the English southern railway companies. That recurrent period has apparently again come round and the columns of our contemporary have borne their usual crop of correspondence on this subject. We ourselves are not, of course, concerned directly with problems of railway management, but all matters which touch upon questions of hygiene concern us, and some of the defects of the administration and management of the railway lines which the letters in the *Times* reveal have a distinct bearing upon health and therefore call for notice in our columns. Wherever there is dirt there is the possibility of disease, and a dirty condition of the carriages calls for the strongest reprobation. Wherever there is over-crowding, even the temporary over-crowding of a railway compartment, there is the possibility of danger to health, and the habitual over-crowding of trains into and out of London at certain hours of the day on all the southern lines, and unhappily on some of the northern lines also, is a matter calling earnestly for attention. Nor is the question of the gross unpunctuality which has prevailed for years on the southern lines without importance from the purely medical and hygienic standpoint. Anything which tends to enable the Londoner, and, to a less degree, the worker in all our great towns, to live away from his work, to pass every night at least in the purer air of the country, is advantageous to health. On the other hand, anything which tends to discourage the worker in towns from living in the country and obtaining his daily supply of fresh and unexhausted air is greatly to be deprecated, and it cannot be doubted that the

habitual unpunctuality of the train service on the lines south of the Thames, together with the habitual overcrowding of the compartments during the busy hours of the day, constitute a serious hindrance to the growth of the practice which has grown up among business men of having their houses in the country. If the merchant, or the banker, or the professional man can leave his house in Kent, Surrey, or Sussex at a fixed hour each day certain of arriving in London without discomfort at the hour at which he is timed to arrive, and if he can leave London in the evening with the same certainty of reaching home without discomfort or unpunctuality, no arrangement would be more satisfactory for him alike from the point of view of health and of enjoyment. If, however, living in the country means for the London man of business two journeys in over-crowded compartments by trains which may arrive anywhere between 15 and 45 minutes after time, with all the rush and hurry and irritation, not to speak of possible pecuniary loss, which such delays mean, it is not astonishing if he comes to the conclusion that country air and country enjoyment may be purchased too dear and falls back upon a house in Chelsea or South Kensington. It must not be imagined because we have spoken in the main of railways in and out of London that this question is of importance in London alone. The same evils, though we are happy to believe in a less extreme degree, prevail on the railways to and from the other great towns of England where there is any considerable body of business men living in the surrounding districts. The difficulty of coping with this local traffic is, of course, very great, but it is not beyond the power of care and money to meet it successfully. The cost would no doubt be considerable. All great evils which have been permitted to grow till they have reached unendurable proportions are apt to require drastic and costly remedies. But that is not a reason for permitting the managers of our railways to shirk them altogether. Indeed, in the case of railways the existence of the evil in its present magnitude is in itself sufficient condemnation of their administration.

BUILDING BY-LAWS IN CREWE.

ALTHOUGH a quarter of a century has elapsed since it became incumbent upon local sanitary authorities to appoint a medical officer of health, there are still some members of these bodies who are ignorant of that official's duties and who appear to be only too anxious to minimise his influence. This indifference to the well-being of those whose interests they are supposed to serve is usually to be found in small rural districts where the evils resulting from inattention to hygienic laws are often counteracted by an abundance of pure air and by the simple habits of life of the inhabitants. In a large progressive town such as Crewe has of late years shown itself to be we should have expected to find more enlightenment, but to judge from a more or less acrimonious newspaper correspondence that has lately been passing between an alderman of the borough and the former medical officer of health our expectation would be vain. In his last annual report upon the sanitary condition of Crewe Dr. Meredith Young referred to the unsatisfactory manner in which some of the building by-laws were being carried out, upon which Alderman Briggs questioned the desirability of the medical officer of health interfering with the erection of new buildings or with the enforcement of the building by-laws. The particular by-law which Dr. Young was anxious to have more rigidly enforced referred to the concreting of the sites of dwelling-houses, and as Crewe is situated upon a bed of stiff clay it is surprising that any person should object to his recommendation. That a medical officer of health does not exceed his duty in calling attention to breaches of building by-laws is made clear in a communication to Dr. Young from Dr. Franklin Parsons, assistant medical officer to the Local Government Board, in which he says that By-law No. 10 in Model Series 4, requiring a concrete layer under floors of houses, is made under the powers of Section 157 (2) Public Health Act, 1875, as one "with respect to the foundations of new buildings for the purposes of health." Article 18 (5) of the Local Government Board General Order of March, 1891, with respect to the duties of the medical officer of health, prescribes that "he shall advise the sanitary authority on any question relating to health involved in the framing and subsequent working of such by-laws and regulations as they may have power to make." Clearly, therefore, says Dr. Parsons, a medical officer of health is right to call attention (of course in temperate and judicious language) to conditions injurious or dangerous to health which are allowed to come into existence owing to failure to carry out the by-laws.

TREATMENT OF THE INSANE IN THE EAST.

ON August 6th there was opened on one of the lower slopes of Mount Lebanon, Syria, near to the carriage road from Beyrout to Damascus, a newly-built hospital for the care of lunatics. It has been founded by Mr. Theophilus Waldmeier, a veteran missionary in Abyssinia and Syria, and consists of a central administration block and two pavilions, for male and female patients respectively, accommodating 20 of each sex. 17 patients are already under care. A considerable area of land and gardens for the growth of wheat, olives, and other fruit surrounds the houses. Dr. Wolff, from the Munsterlingen Asylum, Switzerland, is the medical superintendent. This is the first organised lunatic hospital in Syria and it has in consequence attracted much attention, the need for such institutions in the East being great. It will probably be dependent upon support from Europe for a good many years. Dr. Percy Smith is the chairman of the committee in London, which includes amongst others Dr. Robert Jones of Claybury and Dr. Bedford Pierce of York; Sir R. Tangye acts as treasurer.

GANGRENE OF THE INTESTINE FROM PORTAL THROMBOSIS.

AT the meeting of the Société Médicale des Hôpitaux de Paris on July 13th M. Edgard Hirtz and M. M. O. Josué read an important paper on this rare condition. When the mesenteric veins are obliterated as a result of portal thrombosis profound alterations occur in the intestine—sanguineou infiltration and necrobiosis—which may be rapidly fatal. The following case is an example. A woman, aged 33 years, noticed that her abdomen was enlarging. The increase in size was of sudden onset and at first took place rapidly and then more slowly. About the ninth day paroxysmal pains in the dorsal and lumbar regions appeared. The patient rapidly became weaker and diarrhœa (but not melæna) occurred. At the end of three weeks when she was admitted into the hospital she was very feeble and the abdomen was greatly enlarged. In the distended abdominal wall a collateral venous circulation was well developed; round the umbilicus was a network of veins in communication with the thoracic veins. There was much ascites. The liver appeared to be of normal size; the spleen was enlarged. The lower limbs were œdematous. The jugular veins were distended. On the third day after admission the patient vomited twice or thrice and complained of acute abdominal pain. The features became drawn, the eyes sunken, and the nose pinched—in short, the *facies péritonéal* was present. During the night she was delirious and on the next day comatose. On the following day she died. At the necropsy a large quantity of serous fluid was found in the abdomen. At its middle for a distance of 20 inches the small intestine was of a red,

vinous colour, stiff, and thickened. It contained a quantity of fluid blood. There was old endophlebitis of the portal vein, which was completely blocked, principally by a whitish firmly adherent clot, partly by detachable bloody clot. There was "nutmeg" liver, but the heart was normal. Portal thrombosis with gangrene of the intestine has never been recognised during life. The symptoms are not definite. Paroxysmal abdominal pain is a constant symptom. In a case recorded by Barth[1] the patient without apparent cause was seized with such violent pain that hepatic colic was diagnosed. The appearance of severe pain in a case of ascites or the existence of a painful abdominal affection which does not conform to any recognised type should arouse the suspicion of portal thrombosis. Sometimes neither flatus nor fæces are passed and intestinal obstruction is diagnosed.

THE ABOLITION OF PUERPERAL FEVER.

THE abolition of puerperal fever is rapidly coming within the range of practical medicine. Every good practitioner knows that with due hygienic precautions, the careful cleansing and disinfection of his hands and of the genitals of the patient, and with an intelligent nurse who sympathises with such measures, the occurrence of puerperal fever is rendered exceedingly rare and improbable. This consummation has been long exemplified in lying-in hospitals, where such measures are often more practicable than they are in the straitened houses of the poor. It is very satisfactory to find that the care of medical men and of respectable nurses is now rapidly reducing the occurrence of this peril—this preventable peril—to lying-in women in private practice. A very happy and significant illustration of this is given in the last quarterly report of the medical officer of health of Islington. At page 33 of this report Mr. A. E. Harris says, under the head of "Puerperal Fever": "For the first time in 36 consecutive quarterly periods there has been no death ascribed to puerperal fever." Islington is a populous and even a crowded parish and we congratulate its practitioners on this significant report of the medical officer of health.

DEFECTIVE CHILDREN UNDER THE LIVERPOOL SCHOOL BOARD.

THE Liverpool School Board, after carefully considering the training necessary for crippled and defective children, has provided a special day training school for the reception of 61 cripples and 120 mentally defective children, an account of which has appeared in the *Liverpool Mercury*. Commencing with a few cases only, at the present time 47 cripples, besides 25 boys and 10 girls mentally defective, attend daily, the two sections of the school being taught separately under the care of the head mistress, with seven certificated assistants and a nurse. There is an omnibus to convey the children from and to their homes; dinner is supplied at the school and served by the teachers; adjustable couches are provided for the crippled children; also wheel chairs and little arm chairs and separate desks for other pupils, so that children who are the subjects of spinal disease, paraplegia, hemiplegia, and infantile paralysis can be instructed according to their ability and special requirements while at rest in a proper position. The comfort, health, and cleanliness of the children, as well as the sanitary arrangements, are carefully attended to; baths of various kinds are provided, with a large one in which the cripples can paddle; there is also a room in which the nurse can look after the children requiring medical dressings or care during the day. An institution thus thoroughly furnished and staffed for the training and instruction of crippled and defective children should afford object lessons of interest to medical men as well as to teachers and the public generally, and should supply useful knowledge and experience in the best methods of training those qualities of brain-power which are dormant or defective. As a training school for teachers this institution must, under scientific guidance, prove of great interest and value. University College, Liverpool, has a department of education organised for the training of students desirous of obtaining the University diploma in education. The instruction given includes a course of lectures by Professor C. S. Sherrington on elementary physico-psychology explanatory of the physiological principles involved in education and in the observation and interpretation of mental phenomena. If the managers of the special classes for defective children could arrange for the scientific training of students, combined with practice and demonstrations in this special school, a supply of efficient candidates for the staff would be forthcoming in the extension of this useful work.

CLINICAL EVENINGS AT THE CLINICAL SOCIETY

THE evenings devoted to the exhibition of cases at the Clinical Society have always been popular with the members, but it has often been felt that sufficient time could not be devoted to the examination of the cases in consequence of the large number which are generally exhibited. With the view of obviating this difficulty and of dismissing the patients earlier the Council has decided to alter the procedure hitherto adopted. The patients will be in attendance from 8 to 9 P.M., and during this time they can be examined by the members; after 9 they will be dismissed. The chair will be taken by the President at 9 P.M., instead of at 8.30 P.M. as heretofore, and then a discussion will take place on those cases only about which questions may be raised; otherwise the exhibitor will not be supposed to make any further communication than the summary of the notes which has been supplied with the cases. This new departure promises to make these evenings still more useful and attractive; and it is a procedure which, apart from other advantages, will remove the objection frequently raised of keeping children and those patients who come from a distance until 10 P.M. or later.

ACUTE ALBUMINURIA

IN another column (p. 1011) we publish the records of three interesting cases of acute albuminuria. Such cases are very rare, but should not be difficult to recognise. Acute albuminuria not uncommonly occurs in the course of specific fevers and usually proves fatal, but in the three cases referred to there was no distinct history of a specific fever, although two of the patients had suffered from influenza a few weeks previously to the onset of the albuminuria. One of these died and the other recovered. In the third case no history of any fever could be obtained; the man had been overworked for many months, and it was only on examination of the urine that an accurate diagnosis was arrived at. A marked feature of such cases is that the appearance of toxæmic symptoms is very rapid. The urine also is characteristic; it contains a large amount of albumin, with blood, casts, and there is great diminution in the amount of urine. The treatment adopted by Dr. Samuel West and Mr. F. C. Evill is also of great interest. Oxygen has been advocated by some authorities in cases of "renal asthma," and would seem to possess the power of cleansing the blood from the toxins which excite the grave and distressing symptoms. From the results obtained in two of the cases which we are discussing it would seem desirable that oxygen should be more frequently used in the treatment of uræmia than has hitherto been the case. Free ventilation

[1] THE LANCET, Nov. 20th, 1897, p. 1338.

also may be employed with advantage, as in Mr. Evill's case. That such apparently hopeless cases recovered is a reason for urging that the remedies described by Dr. West and Mr. Evill should be pushed with continuous energy.

DEATH OF A MEDICAL PEER.

IT will probably be news to most of our readers that until a few days ago Lord Lister was not the only member of the peerage of the United Kingdom who could claim to be also a member of the medical profession. The death has just been announced of John Contée Fairfax, eleventh Baron Fairfax of Cameron (Scotland), who resided at Northampton, Prince George's Co., Maryland, U.S.A. The late peer was an M.D. of the University of Pennsylvania, but is described as having lived the life of a gentleman farmer and does not appear to have followed regularly the practice of medicine as a profession, though he styled himself Dr., and not Lord, Fairfax. Under the heading "Recreation" in that useful and entertaining work *Who's Who* are many remarkable entries, but possibly that which describes Lord Fairfax's *recreation* as "medicine" is unique. His medical bent seems to some extent to have been hereditary, for the pages of Burke's "Peerage" show that several of his ancestors were members of the profession. Lord Fairfax did not ever come to this country to claim formally his rights as a member of the peerage, but there is no doubt that he was entitled to them had he chosen to do so. The third baron was the famous Parliamentarian General who fought at Marston Moor; the sixth baron, who lived to the age of 90 years, settled in the United States of America, having inherited a vast extent of land in Virginia from his mother, and since then his "descendants," if we may use the word of one who never married, have resided there. The history of the Fairfax family is decidedly interesting and it is believed that Thackeray founded "The Virginians" upon circumstances connected with their settlement in America.

LOCOMOTOR ATAXY WITH NASAL CRISES.

AMONG the rare forms of crises associated with locomotor ataxy[1] nasal crises must be reckoned as amongst the rarest. In a recent issue of the *Revue de Médecine* (July, 1900) Dr. Henri Jullian reports an interesting case illustrative of this rare condition. The case was that of a man, aged 55 years, the subject of alcoholic and sexual excesses but free from syphilis. He developed symptoms of locomotor ataxy (absence of knee-jerk, Romberg's symptoms, Argyll-Robertson pupils, &c.), and for the last four years was subject to nasal crises. These consisted of paroxysmal attacks of sneezing, which developed unexpectedly and without coryza. Each such attack was preceded by a sensation of pins and needles or of tickling deep within the nasal fossæ. These paræsthesiæ lasted for about three minutes, and then the attack of sneezing would commence and last about a quarter of an hour. During each such attack he would sneeze violently about 20 or 30 times. Such attacks occurred frequently during the day but were never accompanied by nasal catarrh or excess of secretion. For some years the sense of taste had been defective, and at times he suffered from an intensely bitter taste in the mouth especially at night. At such times he would wake up and find himself salivating profusely. At the end of an hour both the salivation and the bitter taste would disappear. Physical examination of the cheeks showed the presence of anæsthesia and analgesia in the buccal mucous membrane and in the vestibule of the nose. The skin on the cheeks also showed diminished sensibility and the naso-conjunctival reflex was abolished. There was neither taste nor smell and the pharyngeal reflex was abolished. Hysteria could be excluded in this case. Deglutition was normal, and both sight and hearing appeared to be good. The case was one of genuine tabes dorsalis.

[1] Vide THE LANCET, April 1st, 1899, p. 915.

MEDICAL SERVICE IN STATE AT ST. PAUL'S.

THE Bishop of Rochester has consented to preach the sermon at St. Paul's Cathedral on Wednesday, Oct. 17th, at 7.30 P.M., at the annual service which is organised by the Guild of St. Luke and which is usually attended by a large number of the members of the medical profession. A choir of over 200 voices provided by the London Gregorian Association will again render the music. Admission to the space under the dome will be by ticket only, applications for which should be directed to the Registrar, Dr. S. Russell Wells, 24, Somerset-street, Portman-square, W.

THE INDIFFERENCE OF SANITARY AUTHORITIES.

AT a time when the question of the better housing of the working classes is being so much discussed the moment is opportune for drawing attention to the indifference that has long been shown by many sanitary authorities in the administration of the Public Health Acts. This indifference has manifested itself in many ways. Building by-laws have not been framed or where framed have frequently been ignored; houses notoriously unfit for habitation have been allowed to remain occupied; and little or no effort has been made to carry out the sections of the Public Health Act relating to the abatement of nuisances. Thus even in districts where buildings are rapidly increasing in number there has been proceeding a gradual but certain manufacture of slums. This is no fancy picture but a reality that is found recorded with persistent regularity in the reports of the medical inspectors of the Local Government Board. These reports, as all who study them will admit, are admirably compiled, are written in a thoroughly impartial manner, and have running through them a spirit of sympathy with the difficulties that are met with in varying degrees; moreover, the measures which the writers suggest should be carried out by the local authorities concerned are never of a preposterous character, but only such as are warranted by the special circumstances of the locality. It is not a little disheartening, then, to find how frequently a deaf ear is turned to suggestions of reform and how the lessons of a preventable epidemic are over and over again learned to no purpose. Two or three instances will suffice in illustration. Dr. G. S. Buchanan visited West Bromwich, a town having a population of considerably over 60,000 persons, in 1895 and urged upon the town council the necessity for remedying numerous insanitary conditions, but he found upon revisiting the town three years later that many of his suggestions had been unheeded or only partially adopted, noticeably in regard to the adoption of building by-laws and an increase in the staff of sanitary inspectors. Dr. Edward Ballard paid a visit of inspection to the rural district of Stow-on-the-Wold and to Bourton-on-the-Water in 1874 on account of an epidemic of typhoid fever, yet Dr. Deane Sweeting reported nearly 25 years afterwards that the insanitary conditions existing at the time of Dr. Ballard's inspection remained practically unaltered. Again, in one of the most recently issued of the Local Government Board reports Dr. Wilfred Fletcher states that although the sanitary authority of Coleford in Gloucestershire received from the Board in 1893 a series of eight formal recommendations for the sanitary improvement of the district and although all the requirements were most reasonable, only one of them had been adopted by the end of 1899. The Local Government Board is naturally reluctant to exercise the very ample powers contained in Section 299 of the Public Health Act, 1875,

enabling the Board to enforce upon a defaulting local authority the performance of its statutory duties, but it is certainly a question worthy of serious consideration whether the putting in force of the powers of the Board in one or two instances would not have a salutary effect upon other authorities who are exhibiting a spirit of indifference to their responsibilities.

ALCOHOL AND THE TROOPS RETURNED FROM THE WAR.

IN our issue of July 28th (p. 273) we drew attention to the desirability that the welcome offered to those who have fought and bled for their country, and we might add for us who have stayed at home, should not include the treating of them with an overplus of alcoholic drinks. We are induced to return to this subject owing to the announcement that the City of London Imperial Volunteers are expected home about the beginning of November. Some will be convalescent from wounds or sickness or possibly from both. Of the warmth of their reception there can be no doubt and it is fitting that they should be greeted with gratitude as well as with joy. They are the first volunteers as distinguished from regulars to serve in the fighting line who have left these islands; they have by all accounts seen plenty of fighting and have borne themselves nobly. Their home-coming, therefore, should be marked by a welcome which, although hearty, should be commensurate in dignity with the serious work which they have so well carried out. For these reasons we would beg enthusiastic friends and countrymen not to mar the return of these or of any troops by temptation to over-indulgence.

THE SMOKE NUISANCE.

OUR remarks last week about the recrudescence of the smoke nuisance promise to stir up public opinion with good effect on the desirability of suppressing this intolerable evil. The newspapers in general expressed the opinion that we "waxed somewhat strongly" on the subject, but we do not admit that our words were too emphatic. The *Westminster Gazette* in quoting our article added the stale remark that "it is unfortunately easier to point out the evil than to suggest a permanent remedy." This remark hardly needs reply from us, since Sir William Richmond promptly cleared the mind of the writer of it on this point. Sir William Richmond's answer was as follows:—

It is cheaper to consume smoke than to allow it to pass into the atmosphere. Smoke is wasted fuel. At a comparatively small cost all factories, electric lighting stations, &c., can be provided with smoke-consuming apparatus. This being the case the public has only to demand a clear atmosphere—anyhow as far as the smoke from factories, steamers, and railway engines is concerned—and they will get it. The vestries and the L.C.C. do not enforce the law against smoke partly on account of apathy, but chiefly because in those bodies there are many smoke-makers, or friends of such.

Sir William Richmond wrote a similar letter in the *Daily Graphic*, Oct. 3rd, *à propos* of our remarks. As a reference to our correspondence columns this week will show, Sir William Richmond has also addressed us upon the subject. We most sincerely hope that his appeal will receive the support of all who are interested in keeping "a clean sky" and stopping once and for all the vestries and other authorities from "making it dirty." It is sheer nonsense to say that smoke cannot be prevented. The fact is the question is not seriously considered. It has been demonstrated again and again that properly constructed boiler furnaces when properly fixed need not smoke. The best example that we know of in this connexion in the case of Nottingham, where black smoke was practically abolished because the nuisance proved to be injurious to the lace produced there. This is a complete answer to the observation that "it is unfortunately easier to point out the evil than to suggest a permanent remedy." It is nothing of the kind. More than that, when preventive measures are taken, it is a source of added revenue. It is just as important, in our opinion, that our public health authorities should see that the atmosphere which we breathe is untainted as that the water which we drink is unpolluted and the food which we eat is unadulterated.

THE UNIVERSITY OF LONDON.

THE first meeting of the Senate of the University of London will take place on Oct. 24th and the members of the various bodies appointed to serve thereon must be soon elected. The Royal College of Physicians of London has appointed Dr. P. H. Pye-Smith and Dr. W. H. Allchin, and the Royal College of Surgeons of England Mr. H. G. Howse and Mr. A. Pearce Gould as their representatives. These gentlemen have the advantage of being old graduates of the University and are well versed in the movements for its conversion into a teaching university and the opposition to such a change. On Oct. 9th, at 5 P.M., a meeting of Convocation will be held at the University new building at South Kensington, in the East Conference Hall, for the appointment of the members to serve on the Senate under the statutes made by the Commissioners. The registered graduates in medicine and in surgery are urged to elect Dr. Thomas Barlow and Dr. J. Frank Payne on the one hand, or Dr. S. Ringer and Mr. Quarry Silcock on the other, but two only can be elected. Dr. Barlow and Dr. Payne are frankly in accord with the views put forward by us for the establishment of a real teaching university in London, whilst Dr. Ringer and Mr. Silcock have the strong support of the so-called Graduates' Association, urging strongly that the existing work of the University is to be kept up as far as possible as it now is. The question of external students in arts and science, on which so much stress is laid in the circular of the association, does not much concern the medical student, but a re-organisation of examinations, so that he may not be examined twice or thrice in the same subject, is a far more necessary reform for the proper teaching of medical science and practice.

THE HARD CASE OF THE ROYAL LONDON OPHTHALMIC HOSPITAL.

WE have already[1] expressed our sympathy with the movement which has for its object the exemption of hospitals and similar charitable institutions from the payment of local rates, and a case has just occurred which shows with painful clearness how seriously this burden may affect the financial position of a hospital. The Governors of the Royal London Ophthalmic Hospital (Moorfields Eye Hospital), City-road, E.C., received a summons for non-payment of rates amounting to £324, and although the secretary explained at the hearing of the case that it was impossible for so large a sum to be forthcoming at present, the court held that it could do no more than make an order for payment in 14 days. This claim seems to be particularly hard in view of the fact that the new building has only been occupied for one year, and during that time the hospital has actually paid £540 in rates. Besides suffering like all other charities by the diversion of subscriptions to the various war funds and the Indian Famine Fund, this hospital has to meet an increase of expenditure consequent upon the occupation of larger buildings in the way of an increase in wages and in the cost of lighting and heating. It also has now to pay £1210 a year ground-rent, whereas the old property at Moorfields was

[1] THE LANCET, March 10th, 1900, p. 715.

freehold, and its rates are now £870 as against £50 at Moorfields. The sale of the old site will pay for the erection and equipment of the new building, but the committee earnestly appeal for new subscriptions to meet the increased cost of maintenance under the present improved conditions.

KERATOLYSIS OR SKIN-SHEDDING.

IN the *Journal of the American Medical Association* of Sept. 1st Dr. R. M. Stone has recorded a case of this curious affection which is analogous to the moulting of birds. The subject was a strong, healthy man, aged 50 years, who shed his skin every year. He was born in May, 1849, and shed his skin in the following July, and since then every summer. In 1893, 1899, and 1900 he shed his skin twice at intervals of a month. The period of shedding is ushered in by a feeling of malaise and chilliness and is followed by fever with a temperature as high as 103° F. The skin of the body desquamates, but that of the palms, elbows, buttocks, penis and scrotum, knee-caps, and feet comes off in a mass. The hair of the head, eyebrows, and moustache falls. The patient does not become bald, but the hair falls little by little, as after typhoid fever. The nails also participate in the shedding. During the period of shedding the patient is able to work. When the skin begins to be shed perspiration ceases and the epidermis becomes raised and hard so that when struck it gives off a sound like that of celluloid. The patient's family history is good and no relative has been similarly affected.

UP to the time of going to press the following medical candidates have been re-elected Members of Parliament:—John Dillon, L.R.C.S. Irel. (Mayo East); Sir M. Foster, M.D. Lond., K.C.B. (London University); C. K. D. Tanner, M.D., M.Ch. R.U.I. (Mid Cork); and Sir J. Batty Tuke, M.D. Edin. (Edinburgh and St. Andrews Universities).

THE opening address at the London School of Tropical Medicine was delivered on the evening of Oct. 3rd, by Sir William McGregor, K.C.M.G., M.D., the subject being Some Problems in Tropical Medicine. The address will appear in full in THE LANCET next week.

THE First Hunterian Lecture will be delivered before the Hunterian Society at the London Institution, E.C., by Dr. Norman Moore on Oct. 10th, at 8.30 P.M. The subject will be the Clinical Study of Heart Disease. Members of the medical profession are invited to attend.

WE have received the report of the Commissioners in Lunacy for England and Wales for the year 1899. We hope shortly to publish an extended notice of the report.

A REUTER'S telegram of Sept. 30th from Brisbane states that a case of plague has been reported at Charters Towers, Queensland.

WE are informed that a meeting of the Penal Cases Committee of the General Medical Council was held on Oct. 2nd.

BRITISH DENTAL ASSOCIATION.—The annual general meeting of the South Wales and Monmouthshire branch of the British Dental Association was held at Newport on Sept. 27th. Mr. J. C. Oliver in an interesting address said that the point as to whether it was legal for an unregistered person to practise dentistry for profit had never been decided by the law courts. Mr. Graham White was elected president for the ensuing year. It was decided to hold the next annual meeting at Cardiff.

THE FERRUGINOUS BATHS OF SHANKLIN SPA.

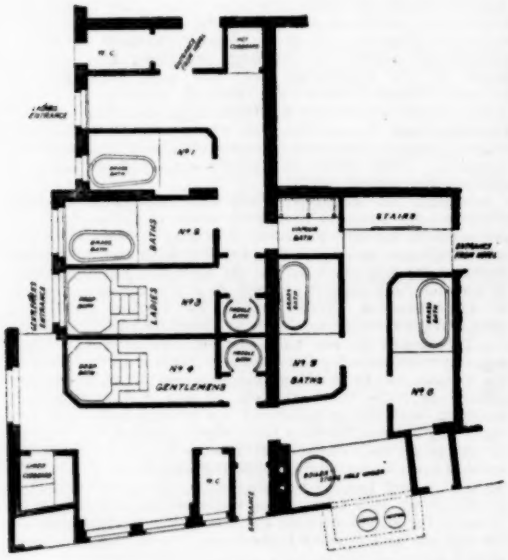
SHANKLIN in the Isle of Wight has long possessed a ferruginous spring of some merit, but like so many other meritorious natural mineral waters in this country its value has not been widely recognised. In spite of representations to the contrary English people still visit the various spas of the continent, whatever may be the advantages which may be had at similar places in this country. Fashion is doubtless the chief factor which has hitherto been unfavourable to enterprise in regard to the development of English spas. Yet if a list of the natural springs of Great Britain be consulted it will be found that almost all kinds of mineral waters occur in this country. We have thermal waters at Bath, sulphur waters at Harrogate and Llanwrtyd in Wales, and saline springs and barium springs in Wales, not to speak of the chalybeate springs at Tunbridge Wells, Brighton, and elsewhere. In some instances, of course, great effort has been made to equip these places on a scale similar to Homburg, Wiesbaden, and Schwalbach on the continent, but our home resorts do not possess the renown of the foreign spas. Individual enterprise has done what it could but patronage has failed. In particular, however, it would appear that attention has never been seriously directed in this country towards utilising ferruginous water for bathing purposes; at least we know of no installation of this sort, although, as is well known, there are several celebrated chalybeate waters abroad, as at Schwalbach and Homburg in Germany and Spa in Belgium, where natural ferruginous water is heated in a specially constructed bath for immersion purposes. These waters are chiefly employed for cases of anæmia and general debility.

Although in England chalybeate waters are fairly abundant no attempts have been made to utilise them on any scale for bathing purposes, or it may be that the yield of ferruginous water is not consistent with the erection of baths on any important scale. At Shanklin, however, there is an abundant supply of pure ferruginous water which if circumstances needed could be further developed. Hitherto the ferruginous waters at Shanklin have been practically allowed to run to waste, but arrangements have recently been made for the storage of this water in view of its adaptation to bathing purposes on a plan exactly coincident with that adopted at the "Stahlbrunnen" abroad; and the promoters of the scheme have gone the right way to work, for they have wisely studied the method in vogue at the continental resorts before deciding to embark upon an installation of ferruginous baths at this very accessible and healthy seaside resort. The initial difficulty is to heat up cold ferruginous water to the necessary temperature for a bath without disturbing the natural state of its mineral and gaseous ingredients. As a rule the ferruginous waters of this country contain protocarbonate of iron held in solution by the carbonic acid of the water. As soon as such waters reach the surface rapid oxidation of the iron ensues, red ferric oxide deposits, and carbonic acid gas is set free. This disintegration is hastened when the water is heated and an unsightly mixture is presented to the bather, besides which at that point it could not be said that he was taking a bath in the water in exactly the same condition as it flows from his natural source. The promoters of the Royal Shanklin Spa, as we have said, did wisely by gaining the experience of others with regard to the elucidation of this problem and they appointed delegates to visit the ferruginous spas abroad with a view of adopting the same successful methods at Shanklin. The work of survey being completed the work of construction was executed with commendable expedition and there now exists a system of ferruginous baths at Shanklin identical with those at Homburg, Spa, Schwalbach, and elsewhere. It is true that at present the installation is on a small scale, but the appointments are excellent and such as meet the special requirements of patients in regard both to comfort and to general administration. Other kinds of baths which may be regarded as accessory to the tonic treatment by iron baths have also been adopted, the whole installation

consisting of needle baths, brass baths, and vapour baths. Salt water and fresh water hot or cold are also supplied.

The general plan of the installation will be seen from the accompanying diagram (Fig. 1), which is reduced from the plans of the engineer. The brass baths are four in number and are used for the chalybeate water which is heated in the bath by means of a steam chamber at the bottom of the bath, the contents being sufficiently heated in about from five to six minutes. The baths may also be used for fresh and salt water and are fitted with valves with plates indicating the various supplies. The baths are of polished brass provided with a brass seat at the head of the bath for the patient to rest on. They are heated on the system known as Schwartz's system which was first adopted with complete success at Spa and afterwards at Schwalbach and Homburg. The system devised by Schwartz consists of the bath being provided with double bottoms heated by steam, care being taken to prevent the steam from coming into actual contact with the bath water. As is well known, when steam is turned directly into ferruginous water in which protocarbonate of iron is held in solution by carbonic acid gas the water turns cloudy and deposits its iron chiefly in the form of finely divided ferric oxide. The space or steam chamber at the bottom of the baths formed by the double bottom

FIG. 1.



Plan of the baths.

is about two inches deep and extends over the floor of the bath. The steam pipe is connected to a brass pipe by a three-quarter inch connexion and regulated by a valve having a moveable key which is always in the possession of the bath attendant. The outlet or exhaust pipe for the steam is at the bottom of the chamber. The double bottom is formed of strong plates supported by metal bars and bolted together with strong bolts and nuts in order to stand the pressure when the steam is turned on. The steam inlet is at the head of the baths and the outlet at the foot. Their construction is substantially the same as that of the Schwalbach and Homburg baths in which chalybeate water is heated. Fig. 2 illustrates one of the brass baths just described. The deep baths are two in number and are substantially the same in construction as those used at Bath. As will be seen from Fig. 3 they are fitted with mixing boxes and valves with brass name-plates indicating the supplies of hot or cold fresh and salt water. The needle baths are two in number and are made of copper japan enamelled and are provided with hot and cold water and are fitted with mixing boxes for the supply of douche, shower, or spray, the supplies of which are severally indicated by the names on brass plates. Highly mineralised water is not employed in the needle baths because of the liability of the orifices to corrode or to choke. The vapour bath has a steam perforated copper pipe fixed under the seat, the supply of vapour being easily regulated by means of the valve. The installation, as will be seen from the plan in Fig. 1, includes all the usual accessories of baths, such as hot cupboards heated by steam batteries for towels and bathing apparel. Every attention has been directed to the sanitary equipment and to the efficient provision of light, ventilation, and warmth. The corridors and rooms throughout are lined with Roman tiles and the *tout ensemble* is neat, clean, and artistic.

The engineering section of the installation consists of a vertical steam boiler working from 30 to 40 pounds pressure and is of modern design. The boiler is fixed in a chamber below the level of the baths and has a Worthington's feed-pump and feed-tank fitted with a ball valve. Two "calorifiers" or heaters are placed in the boiler chamber for the supply of hot fresh or salt water. The heaters are fitted with an automatic steam-controlling apparatus. Steam is supplied from the boiler to these calorifiers and hot water is run from these heaters to the various baths. All the condensed water from the various baths from the exhaust steam is carried back to the feed-tank and there it is again used for the water-supply to the boiler. The mains have been tested to 60 lb. pressure.

The water from the spring flows from an aperture at the base of the cliff immediately behind the baths and the Royal Spa Hotel. The water flows at the rate of about 2000 gallons per day. According to our observations the temperature of the water as it issues from the spring is exactly 54·5° F. The water is clear and bright but soon gets opalescent on exposure to the air. It possesses a ferruginous taste, but it is worthy of note that except for the iron salt there is no other taste. It is not perceptibly saline to the taste. This fact distinguishes Shanklin water sharply from the waters of Schwalbach and Homburg, which are loaded with mineral salts such as the carbonates and chloride of sodium; indeed, it is doubtless owing to the absence of any important quantity of saline constituents except iron that Shanklin water is decidedly less disagreeable to the taste than are many other ferruginous waters. We considered it advisable to test the water in regard to the amount of iron contained in it on the spot, since changes soon set in on exposure to the atmosphere. The protocarbonate of iron was estimated by means of standard permanganate solution in several samples of water taken directly from the spring, and the test was concluded before many minutes had elapsed from the time the sample was taken. In each case a litre of the water was employed. The results were as follow:—

	Carbonate of Iron.
Sample No. 1 (hotel supply) ...	... 3·08 grs. per gallon.
,, No. 2 (direct from spring)	... 3·12 ,, ,,
,, No. 3 (direct from spring)	... 2·78 ,, ,,
,, No. 4 (hotel supply) ...	... 2·78 ,, ,,
,, No. 5 (hotel supply) ...	... 2·94 ,, ,,
,, No. 6 (direct from spring)	... 3·03 ,, ,,
Mean result of six samples ...	... 2·95 ,, ,,

These results show that the Shanklin Spa water taken freshly from the head of the spring contains on an average three grains of carbonate of iron per gallon. In subsequent samples the total iron never exceeded this quantity, so that the iron present exists entirely in the ferrous or unoxidised state and in the form of protocarbonate of iron ($FeCO_3$). More complete analyses were, however, made in THE LANCET Laboratory, and for this purpose 10 gallons of Shanklin Spa water were evaporated down carefully to dryness. The operation was commenced on the spot in a clean pan of about two gallons capacity, and the residue obtained was transferred carefully whilst still wet to a platinum basin and brought to THE LANCET Laboratory. The basin and contents were then kept at 120° C. in a drying oven until constant in weight. The residue, which was of a rich yellow ochreous colour, proved to weigh 16·927 grammes, or 261·28 grains. The residue was then carefully detached from the platinum basin and finally ground, and after being thoroughly mixed was transferred to an air-tight bottle. Portions of this residue were taken for qualitative

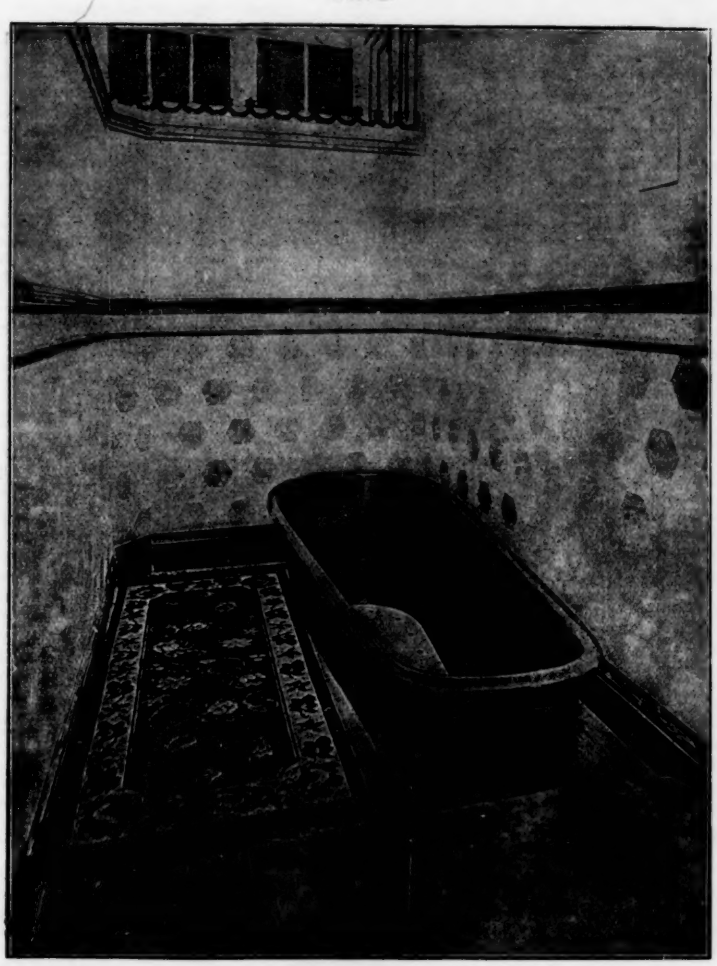
and quantitative analysis. The residue of salts proved to have the following percentage composition:—

Ferric oxide	7·64	per cent. (equal to 11·08 carbonate of iron)
Calcium carbonate ...	23·23	,,
Calcium sulphate ...	22·40	,,
Calcium chloride ...	2·72	,,
Magnesium carbonate	2·80	,,
Potassium chloride...	2·64	,,
Sodium chloride ...	30·70	,,
Silica	7·87	,,
	100·00	,,

When the iron present is reckoned as ferric oxide the total is 26·128 grains per gallon, for on boiling the water down the ferrous carbonate would be so transformed. Reckoning the iron as carbonate the total would be 27·027 grains per gallon. The water, of course, contains free carbonic acid, and according to one experiment to the extent of 100 cubic centimetres per litre of the water. This result, however, is probably under-estimated, inasmuch as the carbonic acid gas was not estimated on the spot.

It should be added here that Shanklin possesses an excellent and abundant water-supply. The total saline constituents in the drinking water amount to 23·52 grains per gallon. If to this amount 2·89 grains of carbonate of iron be added a total of 26·41 grains is obtained, which is very close to the total saline contents of the ferruginous water. The nature of the mineral constituents, however, differs somewhat, but not to the extent that might be imagined, the close proximity of the sea to the chalybeate spring doubtless accounting for the chief differences which are referable to the chlorides of sodium, calcium, and potassium. The geological strata of the Isle of Wight are amongst the most interesting to geologists in this country. From Sandown to Bonchurch the formation is Atherfield clay and ferruginous sands, and in the "Memoirs of the Geological Survey of England and Wales"

FIG. 2.



One of the brass baths for ferruginous water.

According to these results the composition of one gallon of water would be as follows:—

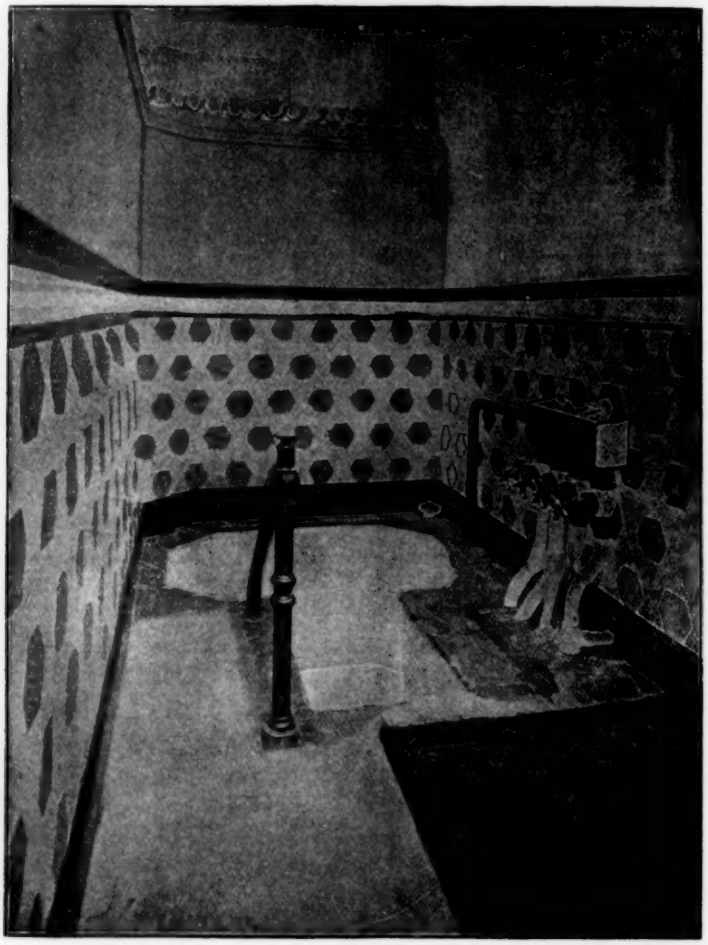
Carbonate of iron ...	2·894	grains (equal to 1·995 ferric oxide).
Calcium carbonate ...	6·067	,,
Calcium sulphate ...	5·850	,,
Calcium chloride ...	0·710	,,
Magnesium carbonate	0·731	,,
Potassium chloride ...	0·702	,,
Sodium chloride ...	8·018	,,
Silica	2·055	,,

it is stated in the volume dealing with the geology of the Isle of Wight (by Henry William Bristow, F.R.S., F.G.S.: London, Eyre and Spottiswoode) that chalybeate water issues from these strata. "The spring known as Shanklin Chalybeate Spa was first noticed by Dr. Fraser, physician to Charles II."

It is interesting to compare the analysis of Shanklin Spa water with the analyses of other ferruginous waters both at home and abroad. The Tunbridge Wells chalybeate water, according to published analyses, contains one grain of carbonate of iron per gallon and a total solid contents of eight grains per gallon. Brighton chalybeate water contains eight grains of carbonate of iron per gallon associated, however, with 92 grains of other salts. The thermal waters of Bath, according to THE LANCET analyses, contain nearly two grains of carbonate of iron per gallon with 140 grains of other salts. Most of the other ferruginous springs at home contain iron in the form of ferric sulphate which is generally associated with excessive quantities of alum which render them very astringent. Such are, for instance, the Sandrock spring in the Isle of Wight, the chalybeate spring at Hastings, and various other springs in Derbyshire, Bedford, Bucks, and elsewhere. As regards continental mineral waters the Homburg Stahlbrunnen contain from 8·55 grains to 4·82 grains of carbonate of iron per gallon, but this is associated with a very large quantity of saline constituents, chiefly chloride of sodium, the total of which amounts to from 600 to 1000 grains per gallon. The Kreuznach springs are similarly composed containing a little over three grains of carbonate of iron per gallon. The Schwalbach waters contain from four to eight and a half grains of carbonate of iron per gallon with from 27 to 90 grains of total mineral ingredients. The Stahlbrunnen at Schwalbach contain as much as 5·85 grains of carbonate of iron with 32 grains of total solid constituents. The waters of Spa in Belgium contain 3·41 grains of carbonate of iron per gallon with a total solid contents of 35 grains per gallon. Many other continental springs could be quoted, but these are sufficient for the purpose as being the most important in regard to their application to balneological practice.

It will be seen that Shanklin Spa water compares very favourably with many of the celebrated ferruginous waters abroad: indeed, for some purposes it undoubtedly presents certain advantages. It is not excessively saline and the iron is the most important constituent. Shanklin ferruginous water is on this account more palatable than the strong saline chalybeates abroad. It is also on the same account less "sticky" in the bath. The nature and in some particulars the amount of the mineral ingredients of Shanklin Spa water are

FIG. 3.



One of the deep baths.

not widely different from those of Spa in Belgium and of the Stahlbrunnen at Schwalbach and the Wildbad waters in Würtemburg (2·63 grains of carbonate of iron per gallon and 32·50 grains of total mineral matters). Careful search was made for the presence of comparatively rare constituents, but with the exception of traces of lithium none were found. It is an advantage that Shanklin Spa water is free from alum and it is not accordingly very astringent. The iron is present entirely in the unoxidised state—the protocarbonate of iron formed in the Blaud pill.

Though at present the installation of ferruginous and other baths at Shanklin Spa is only on a small scale, the fact that an excellent start has been made, and on lines fully in accordance with balneological practice abroad, deserves to be recognised. The enterprise is one worthy of all encouragement, and there is no reason why the experience ultimately gained at the Shanklin baths should not yield evidence that this admittedly valuable method of treatment in hydro-therapeutics may be carried on just as efficiently and with equal satisfaction to the patient in this country as at health resorts abroad. Ferruginous baths are said to be of conspicuous value in debilitated conditions. The advantages of a health resort being easily accessible at which a course of treatment by baths may be pursued and where the action of the sea-air is invigorating, are undeniable. As is well known, Shanklin is situated on a bracing coast and in addition to this very important source of benefit to persons who are recruiting health it now presents a system of medicinal baths of which the equipments and appointments are not less satisfactory than are those of foreign watering-places.

CHANGES IN THE MEDICAL SCHOOLS.

St. George's Hospital.—The following changes have taken place in the staff of the hospital and school. The term of office of Mr. Warrington Haward, senior surgeon, having expired Mr. W. H. Bennett becomes senior surgeon. Mr. Marmaduke Sheild has been appointed surgeon and Mr. Herbert Stringfellow Pendlebury assistant surgeon to the hospital. Dr. Fenton has been appointed curator of the museum, vice Dr. Lazarus-Barlow, who has become pathologist to the Westminster Hospital. Dr. Dickson has been appointed medical registrar, vice Dr. Fenton. Dr. Menzies has been appointed senior anæsthetist, vice Dr. Dickson, and Dr. Llewelyn Powell has been appointed junior anæsthetist, vice Dr. Menzies. Dr. Penrose has been appointed joint lecturer (with Dr. Isambard Owen) in the principles and practice of medicine, vice Dr. Ewart, resigned. Mr. G. R. Turner has been appointed joint lecturer (with Mr. Clinton Dent) in the principles and practice of surgery, vice Mr. W. H. Bennett, resigned. Dr. Cyril Ogle has been appointed lecturer in materia medica and therapeutics, vice Dr. Penrose. Mr. Francis Jaffrey has been appointed lecturer in anatomy, vice Mr. Turner. Dr. J. Howell Evans has been appointed demonstrator in anatomy. Mr. Clinton Dent has been appointed treasurer of the medical school, vice Mr. Warrington Haward.

King's College, London.—The changes during the past year have been the retirement of Professor I. Burney Yeo, the succession to the chair of Medicine of Professor Tirard, and the appointment of Dr. F. W. Tunnicliffe to the chair of Materia Medica and Pharmacology; also additions to the hospital staff of Mr. Leslie and Mr. Legg and Dr. Hugh Playfair as medical, surgical, and obstetrical registrars and tutors respectively.

London Hospital Medical College.—On the medical staff the death of Dr. Charlewood Turner has led to the appointment of Dr. Percy Kidd in his place as physician; Dr. Robert Hutchison has been appointed assistant physician. On the surgical staff Mr. H. L. Barnard has been appointed as an additional assistant surgeon; Mr. Farmer succeeds Mr. Cunningham as dental surgeon. In the College Mr. A. Keith has been appointed joint lecturer on anatomy, still retaining his senior demonstratorship on anatomy. Dr. Robert Hutchison has been appointed lecturer on Chemical Physiology and Foods and Dietetics, and Dr. J. J. R. Macleod has been appointed demonstrator of physiology in place of Dr. Robert Hutchison. Dr. Dawson has resigned his post of teacher of elementary clinical medicine and has been succeeded by Dr. Robert Hutchison.

Middlesex Hospital.—Dr. Sidney Coupland and Sir R. Douglas Powell, Bart., have been appointed consulting physicians; Dr. C. Y. Biss has resigned; Dr. W. Pasteur has been appointed physician; Dr. F. J. Wethered and Dr. H. C. Thomson have been appointed assistant physicians; Mr. W. Hern has been appointed dental surgeon, Mr. W. S. Nowell assistant dental surgeon, Dr. H. P. Noble assistant anæsthetist, Mr. C. J. Baker casualty medical officer, Dr. J. T. Wills casualty surgical officer, Dr. W. Pasteur lecturer in medicine, Mr. A. Pearce Gould lecturer in surgery, Dr. W. E. Wynter lecturer in practical medicine, Mr. J. Murray lecturer in practical surgery, Dr. A. M. Kellas lecturer in chemistry, vice Dr. Plimpton, deceased, and Mr. T. H. Kellock surgical tutor.

London (Royal Free Hospital) School of Medicine for Women.—Dr. Brodie has been appointed lecturer on physiology, vice Dr. Starling, resigned; Miss Ellaby, M.D. Paris, has been appointed lecturer on ophthalmic surgery, vice Mr. J. G. Mackinlay, deceased; and Dr. Phear has been appointed assistant physician at the Royal Free Hospital, vice Dr. J. Fawcett, resigned.

Owens College, Manchester.—The council of the Owens College has appointed Mr. F. A. Southam to be professor of clinical surgery in place of Mr. W. Whitehead, who has resigned. Mr. G. A. Wright has been appointed professor of systematic surgery in place of the late Mr. Jones. These appointments are subject to confirmation by the Court of Governors at their meeting in October next. Mr. W. Thorburn has also been appointed lecturer on operative surgery and Mr. Joseph Collier has been appointed lecturer on practical surgery.

University College, Liverpool.—Professor Lodge has resigned the chair of Physics on undertaking the Principalship of the University of Birmingham and Dr. E. P. Manby has resigned the post of assistant lecturer in hygiene and is replaced by Dr. Mussen. Dr. Willett has given up the post of obstetric assistant. Dr. N. E. Roberts has become lecturer on infectious diseases and vaccination. Dr. Buchanan has been made assistant lecturer in forensic medicine. Dr. J. S. Macdonald has been made assistant lecturer and senior demonstrator in physiology. Dr. Balfour Stewart has been appointed research assistant in bacteriology.

Anderson's College Medical School.—Dr. J. G. Connal has been appointed to the lectureship in Diseases of the Ear, in room of Dr. Erskine. Professor Carstairs Douglas has been appointed to the chair of Medical Jurisprudence in room of Professor R. M. Buchan. Dr. Carroll has resigned the lectureship in Public Health, but no new appointment has yet been made.

St. Mungo's College, Glasgow.—Dr. McPhail has been appointed professor of anatomy, vice Mr. Kent.

THE WAR IN SOUTH AFRICA.

THE regular warfare in South Africa came to an end with the flight of Mr. Kruger into Portuguese territory and the occupation of Komati Poort by our troops, as we had long ago surmised would be the case. It now only remains to deal with the dispersed bands of the enemy who will no doubt continue to provide work for some time to come for the army of occupation and for the 12,000 police to be raised in the Transvaal Colony and Orange River Colony under the command of General Baden-Powell. There will nevertheless be a good deal to occupy the serious attention of the newly elected Parliament in connexion with the wars going on elsewhere, as in China and Ashanti, and the promised reorganisation of our military forces and army reform. As to army reform, not only has the nation desired it, but the appointment of Lord Roberts as the new commander-in-chief will ensure it. When the Royal Commission have finished their investigations and made their report on the hospitals in South Africa we shall see how far the medical services are likely to be involved in the general

scheme of army reform. For the present the nation is engaged in the turmoil and throes of a general election. There is much, however—of army medical interest at the present moment apart altogether from matters of imperial, domestic, and foreign politics and questions of a purely military nature.

We may deal, first of all, with the speech of Mr. W. Burdett-Coutts to his constituents at the Westminster town-hall on Sept. 29th, a printed report of which we have read. It would be impossible to take up and consider all the points embodied in it; nor is this necessary, for even admitting a good deal of what he has put forward in vindication of his action we may nevertheless pass over much of his address as really irrelevant so far as we are concerned. We are not among those who have made accusations against him about want of patriotism, loyalty to party, and so forth. But assuming, for the sake of argument, that Mr. Burdett-Coutts's statements about the war hospitals were absolutely correct and neither exaggerated nor highly coloured, the question really was as to the causes of the sufferings of the sick and wounded which he described, whether these were unavoidable or not under the circumstances, and whether he had spared no pains to ascertain the true state of affairs before harrowing public feeling by the publication of his painfully realistic descriptions. There is no denying that the publication of his letter in the *Times* had a most painful effect, especially upon the relatives of those fighting in South Africa, and this feeling had an additional and bitter sting and became well-nigh intolerable when accompanied by a belief that the sufferings of the sick and wounded were the result of neglect and might have been prevented, instead of being unavoidable and attributable to the stress and strain of war. We have at present the opinion of Lord Roberts and his staff, who ought to know, on the one side, and that of Mr. Burdett-Coutts on the other; and when the report of the Royal Commission is published we shall, it is to be hoped, learn all the facts. What we have all along contended for is that Mr. Burdett-Coutts was not justified in publishing his letter until he had learned what the military authorities had to urge in explanation of the position and until he had made himself thoroughly acquainted with all the circumstances of the case. It is all very well to appeal now to the tribute which he paid to Lord Roberts's qualities as a soldier and as an eminently humane man. No one doubts them or simply seeks to shield himself from blame behind the authority of Lord Roberts's name, but as Lord Roberts was in supreme command and on the spot he was officially responsible for everything and, what is more, he manfully accepted that position, he courted inquiry, and he gave an emphatic expression of his own views on the matter. No one knew when the war commenced that instead of 50,000 troops 200,000 would be required and would be sent to South Africa, and it is wide of the mark, as far as the medical service is concerned, to make any capital out of the fact that the provision which would suffice for the one force would not suffice for the other. The sudden and deplorable outbreak of enteric fever was not foreseen. It followed the rapid march of the troops to Paardeberg and was probably attributable to their occupation of that most insanitary place and to the subsequent capture of the waterworks at Bloemfontein by the Boers. We see no reason for not adhering to the view which we entertained from the first, that transport was *the* difficulty in this war, which in almost every other respect, also, has been of an exceptionally difficult character. In point of fact we have been assured that no one who has not been in the country and taken part in the present war can realise what the difficulties were. We believe that, even apart from our position and advantages in respect of transport as a sea-power, there is no other nation, despite the shortcomings and mistakes that have been made, which could have accomplished what has been done in South Africa. As regards the alleged improvements that have taken place in the state of the hospitals since the publication of Mr. Burdett-Coutts's letter—which he attributes to the result of his disclosures—we would merely remark that it is not the first time that a *post hoc* has been confused with a *propter hoc*. He omits to say anything about the period of exceptional strain having in the meantime passed away and the extreme difficulties in regard to the transport and distribution of hospital stores and material having been overcome, and apparently regards these as factors of no importance.

The last War Office return issued shows the total casualties since the beginning of the war up to the end of last week, as follows:—

—	Officers.	Non-commissioned officers and men.
Killed in action	287	2,750
Died from wounds	88	825
Prisoners who have died in captivity	3	89
Died from disease	150	5,753
Accidental deaths	3	114
Total deaths in South Africa	529	9,531
Missing and prisoners (excluding those who have been recovered or have died in captivity)	7	812
Sent home as invalids	1,326	30,300
Total, South African Field Force	1,862	40,643
	42,505	
Total reduction of the military forces through war in South Africa:—		
Deaths in South Africa	529	9,531
Missing and prisoners	7	812
Invalids sent home who have died	4	193
Invalids sent home who have left the Service as unfit	—	873
	540	11,409
Total	11,949	

THE IMPERIAL YEOMANRY BASE HOSPITAL.

BY L. V. CARGILL, F.R.C.S.,
OPHTHALMIC SURGEON TO THE HOSPITAL.

There are 31 officers and 972 men to-day in hospital, 12 officers and 447 men belonging to the Imperial Yeomanry. Since the hospital started we have treated 200 officers and 3152 men, 1000 of whom have been Yeomanry.

The Hospitals Inquiry Commission visited us on August 30th. They arrived from Cape Town by their special train at 9 A.M. and after inspecting the camp and taking evidence proceeded north *en route* for Pretoria at 2 P.M.

As regards the medical cases in hospital they are still of a mild type and similar in character to those mentioned in the last letter. One of our orderlies who was on night duty in an enteric fever ward unfortunately contracted the disease some few weeks ago, and although the attack was of moderate severity perforation of the bowel ensued and he died from peritonitis. He was the first orderly whom we have lost from enteric fever, although others have had it.

The enteric fever wards are now being emptied and thoroughly cleansed and disinfected in turn. One of the orderlies who has been in bed for some months suffering from acute rheumatism and pericarditis is now convalescent. Dr. Washbourn has gone to Pretoria to visit the Branch Hospital, and during his absence Dr. Andrew Elliott will be senior physician. There has been no further case of measles contracted from the one case which we have had. In one or two cases of patients desquamating and giving a previous history of rash and sore-throat they have been admitted and at once isolated.

The work in the surgical wards has been heavier during the last two or three weeks than for some months past, and six marquees have had to be transferred from the medical to the surgical side to accommodate the patients sent down. Last week, in response to an urgent telegram from Lord Methuen, Mr. Ballance journeyed north to Mafeking to see in consultation Brigadier-General Little, commanding the 3rd Cavalry Brigade, who had been seriously wounded in the right hip by a soft-nosed bullet which had struck a metal cigarette-case that was in the patient's pocket at the time. A severe lacerated wound had resulted, the entry being three inches vertically below the anterior superior iliac spine and the exit a little below the posterior superior spine on the same side, the track being immediately adjacent to the hip-joint. The patient was brought down to Deelfontein in No. 5 Hospital Train, which was at Mafeking at the time, and the rest of the 96 patients, 40 per cent. of whom were wounded,

were also detrained here. Brigadier-General Little is now progressing favourably and it is hoped that some movement in the hip-joint will eventually be retained. We have had rather a monopoly of the patients from Mafeking, as this is only the second occasion on which a hospital train has been up there. The first train went up shortly after the siege was raised and it brought down the sick and wounded among the besieged and from the relief column. The wounded in Mafeking at the present time are from the operations round Malmani, Zeerust, and Elands River. Mr. Hall-Edwards has thus been kept unusually busy in localising bullets and shell fragments in the x ray department.

Last week the first amputation occurred in the hospital since its commencement in March last and this speaks volumes for the efficiency of the modern antiseptic treatment of compound fractures and the merciful character of the Mauser bullet, a large number of compound comminuted fractures having been treated here. The case was one of severe compound fracture of both legs by the same bullet and Mr. Ashdowne amputated the right thigh in the lower third on account of spreading osteomyelitis in the bones of the leg which previous operations had failed to stop. The patient is now doing well and it is hoped that the fracture in the left leg will heal.

The first circumscribed traumatic aneurysm in this hospital was operated upon by Mr. Parker a few days ago. The case was one of a man who was shot in the left forearm by a Mauser bullet at a range of 100 yards. The bullet entered the back of the limb one and a half inches below the tip of the olecranon process and emerged on the flexor aspect after fracturing the ulna two inches below the bend of the elbow at the anterior border of the supinator longus. The posterior wound had closed, the anterior one was still open, and on Sept. 5th the patient suddenly lost three or four ounces of blood from it. There was a pulsatile swelling three inches in diameter on the anterior surface of the forearm just below the elbow. The radial pulse was strong; the ulna could not be felt. At the operation after turning out the clots an aperture was found in the ulnar artery about three-quarters of an inch from the bifurcation of the brachial. The injured vessel was tied above and below the wound and the patient is now doing well. The aneurysmal cavity extended between the bones of the forearm on each side of the interosseous membrane, in which there was a hole one inch in diameter, but by far the largest part of the tumour was situated on the anterior aspect of the membrane.

We have only had a few wounds from shrapnel bullets, but their lack of penetrating power is very marked as compared with small-bore missiles. Mr. Ballance had a very interesting case of a man in whom a shrapnel bullet entered the back at a quarter of an inch to the right of the middle line and on a level with the sixth dorsal spine. By means of the x rays it was localised under the sixth right rib in front, half an inch to the inner side of the mammary line, and from this position it was removed by resecting a portion of the rib, the bullet being partially imbedded in the surface of the lung. A shrapnel bullet has in another case been removed from the upper end of the left femur at the level of the junction of the neck and shaft. It had entered the outer aspect of the hip and penetrated the great trochanter. One shrapnel bullet entered the outer side of the left leg on a level with the tubercle of the tibia, the shell having burst 20 yards from the patient. The bullet had just enough energy left to perforate the head of the tibia horizontally and lodge under the skin over the inner tuberosity, whence it was removed by Mr. Parker.

A most interesting case of abscess of the brain resulting from a Mauser bullet wound has been operated on in the hospital. The man was shot on April 13th near Wepener, the bullet entering the forehead one inch vertically above the inner end of the right eyebrow and after traversing horizontally the right cerebral hemisphere it emerged in the occipital region two inches above and to the right of the external occipital protuberance along a line drawn from this point to the right parietal eminence. He was helped off his horse and taken to the hospital and from the time of receiving his wound had been completely paralysed in the left arm and leg. Three months later he was brought down to this hospital with wounds which had long since healed and was in a very drowsy condition with subnormal temperature and a pulse-rate of 54. The left arm and leg were absolutely paralysed but not anæsthetic; the left side of the face was partially paralysed. The knee-jerks were exaggerated; the urine and fæces were passed into the bed. Two days later the drowsiness had increased and external strabismus with dilatation of the pupil had developed in the right eye. I reported commencing optic neuritis on both sides, more marked on the right. Mr. Ballance then trephined over the lower part of the right Rolandic area and after puncturing the frontal and parietal lobes without success an abscess was tapped in the occipital lobe and from four to six drachms of thick yellow inodorous pus were evacuated. The bony aperture was enlarged posteriorly and a tube was inserted. Unfortunately, the patient died on the next day with a temperature of 104·4° F., never having recovered consciousness from the time of the operation. At the necropsy the abscess drained at the operation was seen to be situated in the centre of the right occipital lobe and the cavity was about one and a half inches in diameter. There were two other smaller abscesses which had been untouched by the operation—one in the upper and one in the lower part of the right parietal lobe near the surface of the brain. In the region of the genu of the right internal capsule a patch of white softening was found. There were no portions of bullet or clothing in the cerebral substance. In an agar tube inoculated at the operation a pure cultivation of the staphylococcus pyogenes aureus grew. Apparently the hemiplegia was due to direct destruction of the fibres of the internal capsule by the passage of the bullet and was not due to the pressure of the abscess.

Deelfontein, Sept. 10th.

SOME HOSPITALS IN SOUTH AFRICA.

(FROM ONE OF OUR CORRESPONDENTS.)

The distances in South Africa are so great and the difficulties just now of travelling are so enormous that it is impossible for any one man to visit all the various military hospitals in a short time, but some brief account of those existing in August may be interesting. No attempt in this communication will be made to describe the excellent work which has been done on the Natal side under the superintendence of that able organiser, Colonel T. J. Gallwey, R.A.M.C. Suffice it to say that after evacuating the sick and wounded through Newcastle and Durban by means of the Princess Christian and No. 1 Ambulance trains, and sending them home to England by troopships every fortnight, Colonel Gallwey proceeded to Pretoria a month ago for a special conference with Surgeon General W. D. Wilson, at which it was decided that in future the sick should be sent down by way of Durban instead of by the tedious route through the Orange River Colony to the Cape. This is now being done and it is an obvious improvement for the patients, for besides being much shorter the trains can travel at night without fear of being "held up" by De Wet.

Altogether 35 000 sick and wounded have passed through Cape Town since the beginning of the war; half of these have been invalided to England and the others have returned to duty in the field. Of this large number the mortality is only a little above 1 per cent., but this death-rate does not include those who died at sea or in hospitals in England after arrival there.

The Director-General of the Army Medical Service in London has despatched to the Cape 13 general hospitals, each equipped for 520 beds but elastic enough to spread to double their size; and without counting convalescent homes and small hospitals under 100 beds the general public have added eight auxiliary hospitals. The number of army medical officers in South Africa has been about 460, and their civilian brethren working under them have numbered a few more. If to these we add the civilians employed in auxiliary hospitals we arrive at a total of at least 1000 medical officers. The army has employed its junior officers—captains and lieutenants—in regimental work, with field hospitals, and with ambulance trains; while the seniors—colonels and majors—have been in command of general hospitals, have acted as registrars and secretaries, and have nominally been in charge of the three divisions into which most large hospitals are divided—surgical, medical, and enteric. In most places this system has worked uncommonly well, and the military officers, occupied with constant returns and army regulations, have been well content to leave the purely professional labours of the hospitals to the young civil surgeons, many of whom have quite recently held

important posts as residents in London hospitals. Friction has only occurred on the very limited occasions when an unwise colonel, a generation older than the civilians, has attempted to impress on them the value of antiquated notions of nursing, medicine, hygiene, and surgery. In those cases where the principal medical officer of the hospital is a man who has succeeded in keeping abreast of the times in spite of the great difficulties which surround his department the civilian surgeons have been glad to learn from him not only military routine but the general treatment of disease. It must never be forgotten, too, that much of the success of the auxiliary hospitals has been due to the splendid work of the military commandants furnished to them by the Royal Army Medical Corps.

Cape Town and the Cape Colony.

In July Cape Town was in the midst of the rainy season and was determined not to forget it. Table Mountain was enveloped in mist, the rain fell all day, and the streets were often impassable from thick mud and ponds of water; but now the sun shines on the lovely mountain, mackintoshes and umbrellas have been put away, and the gardens and fields have burst out into a carpet of white arum lilies which grow like weeds. I took an early opportunity of visiting No. 5 General Hospital at Woodstock, which is within a mile of the Cape Town railway-station, because of the attacks lately made upon it. The first thing I was told by the medical officers in charge was that to the best of their knowledge the hospital had never been visited by Mr. Burdett-Coutts. I examined it very thoroughly and whatever its former condition may have been I could find nothing to criticise in the conduct of the hospital. Its site no one will attempt to defend, because it was condemned more than a year ago, but directly the war broke out Sir William Butler decided that even a condemned hospital must be used, as there was obviously no time to construct a new one. In this most practical men will think that he was justified. The obvious faults are that the old wooden huts harbour insects in the summer, as all wooden buildings in all hot countries are known to do, and that the huts are at the edge of the sea, exposed to the discomfort of the south-east wind when it rages and within full view of one of the city drains. The sight of drain-pipes does not make the smell of decomposing seaweed any the more agreeable, but there is no evidence that either medical or surgical cases have suffered in this hospital. Moreover, those to whom Mediterranean fever is well known assured me that they had seen no cases of it at Woodstock. This is interesting, because there are present all the predisposing factors—southern heat, a partially stagnant sea, and a plentiful supply of drainage from the town and from the ships at anchor in the bay. On the day of my visit there were 668 beds full out of a maximum of 750, medically superintended by Colonel Williamson and three other army officers, a quartermaster, and 10 civil surgeons. The new buildings erected during the war are of corrugated zinc and are of course quite clean and without any suspicion of insects. On this point I satisfied myself by examining many patients and some beds. The only criticism which I felt inclined to make was that 14 nursing sisters was an inadequate number for 668 patients, many of whom were in the enteric fever wards. The civilian visitor is also apt to wonder at the crowding of the beds in all hospitals, but it must be remembered that it is war-time and that the chief object is to get as many beds into a room or into a tent as possible while still allowing a little space by the side of each man's bed. The ordinary rules of floor space and cubic area are relaxed in war-time, and I must confess that in spite of overcrowding as judged by the eye I never went into any ward in which the nose detected the well-known human odour. The climate allows liberal roof ventilation and windows to be always open, and in army hospitals there are many convalescents who are only in the wards by night.

At Wynberg there are too important hospitals—No. 1 General Hospital, which has about 700 beds in the old barracks, and No. 13 General Hospital, which supplies 1000 beds in the zinc-and-wood huts with which all South Africa is dotted about.

The sick officers are very comfortably housed in the Sanatorium at Claremont, one of the most beautiful suburbs of Cape Town. This is under the control of Major F. J. Lambkin who has about 40 patients now, mostly convalescents. In deference to the wishes of the Cape Town authorities, the Imperial Yeomanry Hospitals Committee have now established a temporary tent hospital at Mackenzie's Farm, Maitland, where the Yeomanry depôt is situated. There are now 67 patients there including three officers, under the care of Mr. W. Turner, assistant surgeon to Westminster Hospital, to whom the temporary rank of Captain in the Royal Army Medical Corps has been given.

At Matjesfontein, which stands at a height of 3000 feet on the Karroo plateau, a Mr. Logan, who began life as a railway porter, has an estate of 116,000 acres and a hotel which has been used as a sanatorium for British officers until to-day when it is found too far away from the base of operations and is therefore no longer wanted.

Matjesfontein is a very good illustration of what can be done in the Karroo if water is provided. It is surrounded by uninviting plains of dry scrub and ant-heaps, without any other vestige of life. Mr. Logan told me that when he first settled there he used to have to bribe the engine-drivers with coffee to give him a little drinking water. Now the railway and the energy of one man have made the place a centre of production and trade and it boasts of wells, a church, a bank, and villa residences for those in search of invigorating air.

At Victoria Road, a few miles further along the railway, is a convalescent camp for 1000 soldiers, and there are now 540 there.

We next come to Deelfontein, 4600 feet above sea-level and nearly 500 miles from Cape Town, the spot pitched upon for the Imperial Yeomanry Hospital, which has established the reputation of being the best war hospital in South Africa. It consists of many huts, eked out by hospital marquees, and was originally intended for 520 patients. But the numbers have generally been above that. Once they rose above 1000, and they stand to-day at 640, though the numbers of sick in a military hospital depend rather upon whether the convalescents are retained or evacuated regularly. This hospital has now been open for nearly six months and has had the most complete staff of any hospital during this war, being composed of 19 medical officers, including an ophthalmic surgeon, a dentist, and an x-ray expert, 10 dressers, 40 nurses, 10 servants for sisters and St. John Ambulance orderlies, making a total of 200, besides native servants. Mr. A. D. Fripp and Mr. Raymond Johnson have now returned to London, and Dr. J. W. Washbourn is going to Pretoria to take Dr. F. M. Sandwith's place in the Yeomanry Hospital there. Some idea of the equipment at Deelfontein may be obtained when it is stated that about 3000 tons of stores were sent from London at a cost of over £20,000. Some very valuable x-ray work is being done there and it is almost the only war hospital where bacteriological investigation is being made. Much of the well-earned popularity of this establishment with all classes of patients is due to the cheeriness and tact of the commandant, Lieutenant-Colonel A. T. Sloggett, R.A.M.C.

Thirty miles beyond Deelfontein is De Aar Junction, once the great base of Lord Roberts's army, but now dwindled again to its normal dull proportions. Here there is to-day a stationary hospital containing only 150 men, all convalescents, and all insufficient to occupy the nursing sisters.

Norval's Pont is well known to all students of the war as the site of the bridge crossing Orange River and so separating Cape Colony from the Free State. The bridge, before it was blown up by the Boers in March, consisted of 13 spans of 130 feet each, and cost £76,000. Here the best hospital is the Edinburgh, with 200 beds in a series of huts, but the war is so distant that lately there were only five patients in it. Then there are a stationary hospital, and a rest camp, and a convalescent camp, and an officers' convalescent home which moved up from Kimberley at the end of June and consists of three marquees and several bell-tents. This can accommodate 20 officers and is due to the enterprise of Lady Maud Rolleston and Mrs. Seymour.

Orange River Colony.

At Springfontein there is an important section of No. 3 General Hospital, under the care of Colonel A. W. Duke, R.A.M.C. A convoy of 140 convalescents was brought to this hospital from Pretoria this week. Here the tents have wooden flooring and the marquees are placed side by side so as to increase the size of the ward and to facilitate nursing.

Bloemfontein, now recovered from its notorious epidemic of enteric fever, has only the large No. 9 General Hospital on the line about a mile from the town, for No. 10 General

Hospital, which was composed of various buildings in the town, is now being closed. Here was the Portland Hospital which did very good work until the authorities allowed it to close at the end of July, instead of accepting the desire of the staff to proceed to the front. It was a matter of surprise in Bloemfontein that the new Leper Asylum, which had never been inhabited by lepers, was not temporarily used as a hospital during the time of overcrowding, for it would have held at least 100. Probably its distance of two miles from the camp was the chief obstacle.

At Orange River there is a stationary hospital, and at Kroonstad, where Lieutenant-Colonel Wood is principal medical officer of all the hospitals and where lately almost every general of importance has been passing through, there is the excellent No. 3 General Hospital containing 800 patients and officered by two majors of the Royal Army Medical Corps and 12 civil surgeons. This hospital is outside the town and close to the railway line for the obvious convenience of arrivals and departures.

The Grand Hotel was turned into a hospital of 35 beds for sick officers and was quite full from the middle of May till July, but it is now being closed as a matter of economy. This hotel is well supplied with verandahs and was made extremely comfortable, but consisting of separate rooms it required a large staff of nurses. The Scotch Hospital, which is also here, must be praised. There are now 150 patients, mostly surgical, treated by a staff of civilian surgeons and dressers. The Dutch Reformed Church, helped out with tents, formed an additional hospital of 200 beds during the crowded time, but it was shut early in August. Churches are not ideal hospitals, because ventilation can only be obtained by breaking the top windows, and there is of course no provision of latrines. If the climate is perfect, the men do as well in the open air if there are no tents, but if there is any danger of storms of rain, dust, or wind, I cannot see why churches should not be utilised.

The Transvaal.

No one conversant with Johannesburg needs to be told that the civil hospital there is one of the best in South Africa. It stands in beautiful grounds outside the town and is now chiefly full of army patients. The lay nursing sisters were allowed to rejoin the religious sisters there at the end of July. No. 6 General Hospital was moved up here a month ago from Naauwpoort. Although this must obviously be the great business centre of the future Dominion of South Africa it is just now as melancholy as London on a Sunday. Shops and banks are hardly open, and those civilians who are not allowed to draw rations from the army have great difficulty in procuring the necessaries of life such as candles, matches, soap, paraffin, biscuits, milk, butter, flour, cheese, tinned food, &c.

Pretoria is practically the headquarters of the army as well as being the political capital of the new colony and Surgeon-General Wilson early determined to prepare 2000 beds for a possible sick-rate of 1000 or 1500. The distribution has been very well carried out. In the plain east of the town near the railway running to and from the scene of the recent fighting towards Delagoa Bay are three hospitals side by side, all controlled by Lieutenant-Colonel A. H. Keogh, R.A.M.C. These are No. 2 General Hospital (the best Royal Army Medical Corps hospital which I have seen in this war), the Langman Hospital of 150 beds which came up from Bloemfontein in August, and the Welsh Hospital which arrived about the same time from Springfontein. These three hospitals consist entirely of tents, except for various huts which contain stores and a brick destructor for burning the fæces of enteric fever patients after they have been mixed with sawdust and disinfectants. No. 2 General Hospital is one of the few army hospitals which possesses a disinfector for bedding. It is provided with such modern luxuries as a telephone and electric light for the central avenues of the camp. Near by is a most convenient convalescent camp to which patients are drafted from all the Pretoria hospitals until they can return to duty or until they are sent to the base. The Irish Hospital in the Palace of Justice has already been deservedly praised by all visitors. The building had never been occupied, it is one of the best in South Africa, and it has been adapted so easily into a splendid hospital that it is difficult to understand why the Royal Army Medical Corps declined to accept it when it was offered to them. Sir W. Thomson at once jumped at it when he arrived from Bloemfontein in July. He installed electric lighting, he erected latrines and kitchens behind the buildings, and he has created a hospital which it is hard to beat in any country if one remembers that the building was not constructed for a hospital. There are three buildings in the town, each holding less than 100 patients, in the State Model Schools, all belonging to the Royal Army Medical Corps. It will be remembered that it was in one of these schools that the British officers were imprisoned at the beginning of the war. One of the wards is still decorated by a skeleton and a war map, both so skilfully executed that the Boers varnished the wall to perpetuate them. It was from this prison that the officers contrived to get occasional news from some plucky girls at a school opposite. When Lord Roberts heard of this he sent to thank the young ladies and eventually had tea with them, to their huge delight.

The Burke Hospital for officers has now been closed. It was a Boer hospital originally during the war, and the English matron remained in charge of it all through the campaign. There are in addition a hospital at the Racecourse where the British prisoners were sent when sick, a hospital for natives, and a well-kept leper asylum outside the town. The most recent hospital of all in Pretoria bids fair to be the best.

On August 18th Lord and Lady Roberts opened the new Yeomanry Hospital on a site which they had themselves chosen as being the best in or near Pretoria. An estate of 130 acres belonging to a rebel English burgher who had enriched himself by plotting against England with the Transvaal Government, and who introduced among the Boers the soft-nosed bullets and other weapons of war, was commandeered for the purpose. His house, which is extremely well built and stands on a hill getting fresh breezes when Pretoria is airless and misty, accommodates 50 patients and has an operating theatre, while two neighbouring houses have been taken for 30 day sisters and 10 night sisters. The remainder of the patients, who number 400, are divided among three sections of marquees—surgical, medical, and enteric. Water has been laid on to the houses and camp and the electric light is now installed in the principal house. The credit of creating this hospital in the space of 12 days is due to Dr. F. M. Sandwith and Surgeon-Major C. R. Kilkelly, the military commandant. The day after the ceremony of opening the hospital two officers were admitted and a convoy of 99 sick and wounded arrived in ox-wagons at 10.30 P.M. from Commando Nek, two days distant. The medical staff of this hospital has been taken exclusively from young civilians who have recently held resident appointments at St. Bartholomew's Hospital.

Cape Town, Sept. 6th.

THE MEDICAL SCHOOL DINNERS.

Charing-cross Hospital Medical School.—The past and present students of the Charing-cross Hospital Medical School held their annual dinner on Oct. 2nd at the Hotel Cecil. The gathering was an exceptionally large one, covers being laid for 230. The chair was occupied by Mr. John Harold who proposed the toast of "The Hospital and its Consulting Staff" and referred to the pleasure that all felt in listening to the third Huxley lecture delivered that afternoon by their honoured guest, Lord Lister. The next item in the programme was a song by Dr. F. W. Mott who was uproariously compelled to give an *encore*. Mr. J. H. Morgan, in responding to the toast proposed by the chairman, referred in humorous terms to the fitful appearance of the numbers of the *Charing Cross Hospital Gazette* which, however, he regarded with the greatest attention, not unmixed with apprehension, for he had received severe criticism because he had made promises which had not been fulfilled. He now announced that the out-patient department for mental diseases was to be inaugurated at once under the care of Dr. Percy Smith. Next followed an excellent rendering of a song by Dr. Bathurst. Mr. Cantlie then proposed "The Past and Present Students" and referred to the fact that Huxley had been a free student at Charing-cross Hospital. The origin of the free student was the outcome of the action of Mr. Hancock, who was asked to start the school. This surgeon was at Westminster Hospital and told the students there that if they would come to Charing-cross Hospital their medical education would be given them for nothing, with the result that students were

not lacking at Charing-cross Hospital. He urged that to secure the blending of the old students with the new the medical school of Charing-cross Hospital should form an association and he would suggest that the first associate should be Lord Lister. Mr. Charles Baly then sang "Queen of the Earth," and received a well-earned *encore*. The toast of "The Guest of the Evening" was proposed by Mr. H. F. Waterhouse, who eloquently described the debt of gratitude which the medical world owed to the work of Lord Lister. This was responded to by Lord Lister in a charmingly modest speech; his reference to his memories of his old student days and the work of former times being uttered with evident emotion. The speech was worthy of the orator and his concluding compliment expressing his satisfaction at the abundant prosperity of the Charing-cross Medical School was received with loud applause. "The Health of the Chairman" was given by Dr. Mitchell Bruce, and after a short reply from Mr. Harold the proceedings of the evening terminated. On Monday evening a conversazione was held in the school and the occasion was made attractive by musical and dramatic entertainments, exhibitions of chemical and electrical apparatus, x-rays, &c., the whole of the departments being thrown open to the visitors, of whom there was a great number. We congratulate the organisers of the conversazione upon its success. On the next occasion we hope the authorities will see that the various corridors are better lighted. In some places it was almost dark, the only source of light being a single naked gas flame. The electric light has been placed in the museum and the installation might be extended with advantage to the other departments of the school.

Westminster Hospital.—The annual dinner of the old students of Westminster Hospital and their friends, which was held at the Café Monico on Oct. 1st, under the chairmanship of Dr. W. H. Allchin, was, owing to the untiring energy of Mr. E. Canny Ryall, L.R.C.P. Lond., M.R.C.S. Eng., a decided success. Covers were laid for some 250 old students and guests, a fact which is significant because, as the chairman pointed out in proposing the toast of "The Westminster Hospital and Medical School," the number present was three times greater than on any previous similar occasion. Dr. Allchin alluded to the present position of Westminster Hospital as part of the newly-constituted University of London, remarking on the increased responsibilities of the school and its widened scope. The weekly Board of Governors was coöperating with the medical staff and during the past year a splendid pathological and clinical laboratory had been fitted up. As a significant and interesting fact he pointed out that in the very first list of the medical examination of London University in 1839 in a list of 20 individuals appears the name of a student of Westminster Hospital, and only three other schools in London were there represented. The Dean, Mr. A. H. Tubby, in responding, said that the progress of the school as shown by the number of entries was most satisfactory. Up to the present time the entries compared favourably with those of last year, which were double those of the previous year. Last year 80 per cent. of the students passed. The toast of "The Old Students," coupled with the names of Mr. W. Gandy and Dr. J. Swain, was proposed by Dr. T. Colcott Fox. "The Present Students" was proposed by Dr. F. de Havilland Hall and responded to by Mr. G. V. H. Fairhall and Mr. A. R. Roche, the editor of the "Westminster Hospital Gazetteer," otherwise known as "The Broad Way." Among the other toasts were "The Visitors" and "The Chairman," the speakers being Mr. W. G. Spencer, F.R.C.S. Eng., the Rev. J. Garton, Professor Sims Woodhead, and Mr. T. Bond, F.R.C.S. Eng. An excellent musical programme added much to the pleasures of a delightful evening.

King's College Hospital.—The annual dinner of the old students of King's College Hospital was held at the Hotel Cecil on Oct. 1st. The Hon. Sir John Cockburn, M.D., K.C.M.G., presided, and the number of those present was larger than in any previous gathering of old King's College students. The usual toasts, including "King's College" and "King's College Hospital," were drunk and a message from the chairman of the University College Hospital dinner in the same hotel was warmly appreciated and duly reciprocated.—The Principal of King's College replied for the College and hospital and Mr. William Rose most felicitously proposed the health of his old fellow-student and gold medalist who had deserted medicine and become the Agent-General for South Australia. Professor Watson Cheyne and Mr. G. Lenthal Cheatle were warmly greeted on their return from South Africa. The death of Surgeon-Captain M. P. Hughes was referred to most feelingly.

St Thomas's Hospital.—The annual old students' dinner was held on Oct. 2nd in the Whitehall Rooms of the Hôtel Métropole. There were 146 old students and guests present and the chair was taken by Dr. C. T. Aveling. After the toast of "The Queen" Sir William Mac Cormac proposed the toast of "St. Thomas's Hospital and Medical School, Past and Present." He alluded to the cordial relations existing between the staff and governors and paid a tribute to the work done by the St. Thomas's contingent at the Cape, which numbered some 50 men. The toast was coupled, firstly, with the name of the treasurer, Mr. J. G. Wainwright, who gave a brief outline of the financial condition of the hospital, and enumerated, amongst other improvements, the rebuilding of the operating theatres, the ophthalmic and casualty departments, and asserted the determination of the governors to spare no expense in keeping the equipment of the hospital at least second to none. The Dean, Dr. H. G. Turney, in an amusing speech, reviewed the chief changes of the year and alluded in sympathetic terms to the death of Rupert Fawcett while on active service in South Africa and to the retirement of Dr. Payne on to the consulting staff. Dr. T. G. Nicholson having also responded on behalf of the old students the health of the chairman was proposed by Dr. Payne who referred to Dr. Aveling's qualities as a practitioner, to his brilliant hospital career, and to his success in the field of sport. Dr. Aveling, in reply, thanked the company for the way in which they had received the toast and said he believed he was the first man to score a goal in the interhospital football matches. The usual vote of thanks to the secretaries was proposed by Dr. Solly and suitably acknowledged. Mr. G. H. Makins, in answer to repeated calls for a speech, described the conditions under which he had met old hospital men at the seat of the war and pointed out that St. Thomas's students were to be found acting as civil surgeons at the base hospitals and up to the firing line.

Middlesex Hospital.—The annual dinner of present and past students of the Middlesex Hospital took place at the Trocadéro Restaurant on Oct. 1st. Mr. William Lang, ophthalmic surgeon to the hospital, occupied the chair and about 130 persons took part in the proceedings. The Royal toasts were proposed by the Chairman. Sir Richard Douglas Powell proposed "The Services." In the course of his speech he referred to the medical departments of the navy and army and read a list of the names of Middlesex Hospital men serving with the forces in South Africa. He also read portions of a most interesting letter which he had received from an officer of the Royal Army Medical Corps serving in South Africa. The writer remarked that "a more cruelly undeserved attack it would have been difficult to conceive" than that which had recently been made upon the work of that department, and he referred in detail to the difficulties which were encountered on the march to Bloemfontein. Sir Richard Douglas Powell believed that the investigation now being conducted would terminate in a triumphant vindication of the Royal Army Medical Corps. The toast was responded to by Dr. Edward Stewart, who had recently returned from service in South Africa and had been in charge of a hospital train. He considered the work rendered by the Royal Army Medical Corps to have been magnificent. The toast of "The Middlesex Hospital and Medical School" was proposed by the Chairman, who referred to the extensive alterations which had been made in the buildings of the medical school, the laboratories and lecture-rooms being admirably fitted with all modern appliances for study and research work. He also drew attention to the opening of the new cancer wing and to the research work which was there being carried on. The toast was responded to by Colonel T. Lambert Mears and Mr. Pearce Gould (in the place of the Dean, Dr. W. Pasteur, who was unavoidably absent). The toast of "Past and Present Students" was proposed by Mr. Henry Morris and replied to by Mr. E. A. Fardon and Mr. F. D. Blandy, the Senior Broderip Scholar. The toast of "The Visitors" was proposed by Dr. J. Kingston Fowler and replied to by Professor Clifford Allbutt, who had delivered the annual address in the afternoon, and Mr. Wilhelm Ganz, as for many years past, kindly supplied the musical programme of the evening. "The Health of the Chairman" was proposed by Dr. Sidney Coupland, acting for Dr. W. Cayley. Señor Guetary, Mr.

James A. Bovett, and Mr. Paul Stoeving added to the success of the evening by a selection of songs and violin solos.

THE PLAGUE IN GLASGOW.

THERE is but little fresh news to be chronicled concerning the outbreak of plague in Glasgow. Since our last issue two patients have died in the Belvidere Hospital from the disease—namely, a man whose death was notified on Oct. 2nd, and an infant, aged two weeks, born in the hospital of a mother who herself died from the disease. The latest advices from Glasgow show that the actual number of cases in the hospital is 21; of doubtful cases, two.

DISTRIBUTION OF PRIZES AT ST. THOMAS'S HOSPITAL.

THE occasion of the distribution of prizes and certificates to the successful students of St. Thomas's Hospital Medical School on Oct. 2nd was taken advantage of by the many friends of the school and hospital to attend in great numbers. The usual address was given by Sir William Mac Cormac, the President of the Royal College of Surgeons of England. The treasurer of the hospital, Mr. J. G. Wainwright, presided over the meeting and in a few well-chosen words welcomed back Sir William Mac Cormac from the scene of war. After the prizes and certificates had been duly given away by Sir William Mac Cormac he proceeded to deliver his address, and pointed out for the consolation of the unsuccessful students that the real value of trying for a prize was in the effort to succeed. The prize-winning spirit was not altogether an unmixed good because it might be carried too far, and it had this drawback, that it tended rather to specialise the student's work. Examinations were carried to a further degree in China than anywhere else; everyone was examined till he was quite an old man, and it was the only entrance into public life. He thought that men might have perhaps too many examinations. Students were harassed by continual examinations, and examiners in chemistry, physiology, and anatomy were often experts who regarded their particular branch as of the first importance. The most lasting and valuable information a student acquired was that which he taught himself. There was too much spoon-feeding done in the medical schools. Though he (Sir William Mac Cormac) had not made the best use of his first year of study as a student he would urge that the work in that period should not be neglected. In the fine old times the practitioners of England belonged to the "College" and the "Hall," which were good enough for them and for their patients. But by degrees an opinion had sprung up that those who attached M.D. to their names were very superior persons. It was but an example of the superstitions that cling to medicine that there should be a cabalistic value in the possession of these letters. But superstition or not the want was felt and that want would now be supplied. It was certain that at the present time young professional men were hard to find, the State found the supply insufficient, and the competitive examinations were often not competitive, the number of candidates being less than the vacancies. The great steamship companies that used to have a waiting list had now difficulty in obtaining men to fill their surgeons' posts. The state of overcrowding in the profession which was prevalent a few years ago no longer existed to anything like the same extent. In 1851 there was a medical man for every 1398 inhabitants, in 1880 there was one for every 1754, and in 1898, in spite of the increased population, it was one for every 1150. It would seem from evidence which they possessed that the annual increase in the number of medical men was not keeping pace with the increase of population in the United Kingdom. The average annual increase of medical men during the past three years had been 450; the average during the five previous years was 845 or nearly double that number. The late Sir James Paget investigated the careers of a thousand medical students and in 16 years he found that 23 were distinguished men, 66 had arrived at a considerable amount of success, 507 were doing well, 128 had died, and 276 had either left the medical profession or were put down as failures. In the opinion of the speaker the present time was most favourable for entering the profession with the assurance of earning a competency.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6079 births and 4110 deaths were registered during the week ending Sept. 29th. The annual rate of mortality in these towns, which had been 19·6, 18·2, and 18·1 per 1000 in the three preceding weeks, rose again last week to 18·5. In London the death-rate was 16·7 per 1000, while it averaged 19·6 in the 32 provincial towns. The lowest death-rates in these towns were 11·1 in Bradford, 11·9 in Halifax, and 14·7 in Croydon, in Portsmouth, and in West Ham; the highest rates were 23·0 in Liverpool, 23·6 in Blackburn, 26·6 in Manchester, and 27·6 in Salford and in Sunderland. The 4110 deaths in these towns included 776 which were referred to the principal zymotic diseases, against numbers decreasing from 1422 to 771 in the four preceding weeks; of these 495 resulted from diarrhœa, 79 from diphtheria, 76 from "fever" (principally enteric), 70 from whooping-cough, 30 from measles, and 26 from scarlet fever. The lowest death-rates from these diseases were recorded in Birkenhead, Halifax, Bradford, and Newcastle; and the highest rates in Wolverhampton, Norwich, Leicester, Preston, and Sunderland. The greatest proportional mortality from scarlet fever occurred in Sunderland; from whooping-cough in Croydon, Swansea, Oldham, Preston, and Sheffield; from "fever" in Portsmouth, Plymouth, and Preston; and from diarrhœa in Wolverhampton, Manchester, Burnley, and Sunderland. The mortality from measles showed no marked excess in any of the 33 towns. The 79 deaths from diphtheria included 40 in London, nine in Leicester, and four in Sheffield. No fatal case of small-pox was registered last week in any of the 33 large towns; and only two cases of small-pox were under treatment in the Metropolitan Asylums Hospitals on Saturday last, Sept. 29th. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 1938, against numbers increasing from 1702 to 1804 on the four preceding Saturdays; 318 new cases were admitted during the week, against 213, 243, and 269 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 124, 161, and 203 in the three preceding weeks, declined again last week to 187, and were seven below the corrected average. The causes of 40, or 1·0 per cent., of the deaths in the 33 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Birmingham, Leicester, Bradford, and in 14 other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, Leeds, Sheffield, and Hull.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 17·5, 18·9, and 18·9 per 1000 in the three preceding weeks, was again 18·9 during the week ending Sept. 29th, and was 0·4 per 1000 above the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 17·1 in Dundee and 17·2 in Leith to 20·2 in Perth and 25·1 in Aberdeen. The 584 deaths in these towns included 49 which were referred to diarrhœa, 12 to whooping-cough, 12 to "fever" (including three deaths from bubonic plague), seven to diphtheria, six to scarlet fever, and five to measles. In all 91 deaths resulted from these principal zymotic diseases, against 93, 98, and 112 in the three preceding weeks. These 91 deaths were equal to an annual rate of 2·9 per 1000, which was 0·6 below the mean rate last week from the same diseases in the 33 large English towns. The fatal cases of diarrhœa, which had been 42, 54, and 62 in the three preceding weeks, declined again last week to 49, of which 21 occurred in Glasgow, 14 in Edinburgh, four in Aberdeen, and four in Leith. The deaths referred to different forms of "fever," which had been seven in each

of the two preceding weeks, increased to 12 last week, and included seven (three of which were fatal cases of bubonic plague), in Glasgow. The deaths from whooping-cough, which had declined from 25 to 20 in the four preceding weeks, further fell last week to 12, of which five were registered in Glasgow, three in Dundee, and two in Greenock. The fatal cases of diphtheria, which had increased from three to 11 in the four preceding weeks, declined again to seven last week, and included four in Glasgow. The deaths from scarlet fever, which had been seven and four in the two preceding weeks, rose again last week to six, and were all recorded in Glasgow, where three of the five deaths from measles were also registered. The deaths referred to diseases of the respiratory organs in these towns, which had been 70 and 101 in the two preceding weeks, declined last week to 100, but showed an excess of 33 over the number in the corresponding period of last year. The causes of 31, or more than 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 22·2 and 24·5 per 1000 in the two preceding weeks, was again 24·5 during the week ending Sept. 29th. During the 13 weeks of the quarter ending on Saturday last the death-rate in the city averaged 22·7 per 1000, the rate during the same period being 17·9 in London and 16·9 in Edinburgh. The 164 deaths belonging to Dublin registered during the week under notice corresponded with the number in the preceding week, and included 25 which were referred to the principal zymotic diseases, against 44 and 31 in the two preceding weeks; of these 18 resulted from diarrhœa, four from "fever," and three from whooping-cough. These 25 deaths were equal to an annual rate of 3·7 per 1000, the zymotic death-rate during the same period being 2·5 in London and 2·9 in Edinburgh. The fatal cases of diarrhœa, which had been 20, 27, and 24 in the three preceding weeks, further declined last week to 18. The deaths referred to different forms of "fever," which had been seven and three in the two preceding weeks, rose again to four last week. The three fatal cases of whooping-cough were equal to the number recorded in the preceding week. The 164 deaths in Dublin last week included 49 of infants under one year of age and 33 of persons aged upwards of 60 years; the deaths of infants exceeded the number in the preceding week, while those of elderly persons showed a slight decline. Four inquest cases and three deaths from violence were registered, and 53, or nearly one-third, of the deaths occurred in public institutions. The causes of 13, or nearly 8 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeon G. Kirker to the *Trafalgar*. Staff Surgeons: P. E. Maitland to the *Sybille* and A. Cropley to the *St. George*. Surgeons: E. H. McSherry to the *Pallas*; and T. T. Jeans to the *Thunderer* for Pembroke Dockyard.

ROYAL ARMY MEDICAL CORPS.

Major J. Hickman has joined at Woolwich.

ARMY MEDICAL RESERVE OF OFFICERS.

To be Surgeon-Majors: Surgeon-Captain George Hollies; Surgeon-Captain George Henry Darwin, 2nd Volunteer Battalion Manchester Regiment.

VOLUNTEER INFANTRY BRIGADE.

Northern Counties: Surgeon-Major G. W. Brumwell. 2nd Volunteer Battalion the Border Regiment, to be Brigade-Surgeon-Lieutenant-Colonel, on appointment as Senior Medical Officer to the Brigade.

TRANSVAAL WAR NOTES.

Lieutenant-Colonel J. J. Falvey, R.A.M.C., Captain Vidler, R.A.M.C., Lieutenant M'Loughlin, R.A.M.C., and Captain O'Connor, M.M.S.C., are on passage home from the Cape in the *Kildonan Castle*. Major Sir J. R. A. Clark, R.A.M.C., and Major Moir, R.A.M.C., are on passage home from the Cape in the *Briton*.

The following officers of the Royal Army Medical Corps have been discharged from hospital and have returned to duty:—Lieutenant A. H. H. Niblett, Lieutenant J. Tandy and Lieutenant-Colonel Battersby.

The *Avoca* arrived at Southampton on Oct. 2nd with 18 officers and 259 men invalided and wounded from South Africa.

THE APPOINTMENT OF COMMANDER-IN-CHIEF.

The retirement of Lord Wolseley from the office of Commander-in-Chief of the British Army and the appointment of Lord Roberts as his successor are events which should not be allowed to take place without a word of comment on our part. It goes without saying that Lord Wolseley is a thorough soldier. He has had a most distinguished career and his brilliant military services will always, and very deservedly so, occupy a prominent place in the military history of this country. His conduct of the Egyptian campaign of 1882 was marked by great originality of conception and boldness of execution. His lordship, it will be remembered, did not give that amount of credit and support to the medical service on that occasion which the officers of that service thought that they had a right to expect; but that is no reason why his ability and great services in the field and to the nation should not be cordially recognised. There is no need to touch upon Lord Roberts's services because they are well known and speak for themselves. The officers of the medical service have every reason to be satisfied with, and grateful to him for, his handsome recognition of their work in the present war.

THE ASHANTI RISING.

But for the fact that the public mind has been so occupied with events which have been taking place in South Africa and China, the military operations against the Ashantis would no doubt have received far more attention than has been bestowed upon them. The fighting has been severe; the operations have apparently been skilfully planned and conducted, and several of the engagements with the enemy have been of a brilliant kind. Owing to the climate and to the nature of the country and to the fact that the troops have frequently had to advance through dense bush, the campaign has been a very trying one and the progress has been slow. The force on the British side has been mainly a native one, composed of such corps as the Central African Rifles, West African Frontier Force, and others, and it is probably owing to this fact that it has been relatively healthy and that the men have suffered much less from climatic disease than might have been expected. We regret to notice that the death of Dr. Langstaff, serving with the force, has been reported in a letter from the special correspondent of the *Standard*.

THE LATE LIEUTENANT-COLONEL M. R. RYAN, R.A.M.C.

At a recent meeting of the sanitary board at Hong-Kong, Mr. J. Bell, L.R.C.P. Lond., M.R.C.S. Eng., vice-president and acting principal medical officer, the chairman, brought forward a resolution of regret for the loss which they had sustained by the death of one of their members, Lieutenant-Colonel M. R. Ryan, R.A.M.C., who had succumbed to an attack of pneumonia. He was a prominent member of the board, which could ill afford to lose a member, especially when that member was a medical man, and one who had served in one of the best medical schools in the world. He begged to move that the board express its deep regret at the death of Lieutenant-Colonel M. R. Ryan, R.A.M.C. The resolution was declared carried.

Correspondence.

"Audi alteram partem."

"THE NOTIFICATION OF PLAGUE."

To the Editors of THE LANCET.

SIRS,—In an annotation in THE LANCET of Sept. 29th, p. 959, on the notification of plague you truly say that it is undoubtedly difficult for a practitioner to diagnose a disease which he has never seen. I would add that the difficulty becomes extreme when you have—as is often the case with poor people who can only afford to pay for one visit—to make your diagnosis on a first, or even a second, examination in a dark room with filthy surroundings. You also wisely advise your readers to go carefully over the Glasgow cases which you

have fully published from week to week. It is evident that the early diagnosis in general practice of plague is of national importance, and as we all learn far more from a mistaken than from a correct diagnosis I venture to supplement the report of one of the cases mentioned in Dr. A. K. Chalmers's valuable weekly report and at the same time to bring out two interesting facts from a practitioner's point of view. He refers to this case in this week's report as "Rosina M., unmarried, aged 25, of 23, Florence-street, sickened on August 23rd, and her illness was not recognised till Sept. 10th. She had no regular medical attendance."

I was called in to see this patient for the first time on Sept. 10th, and having seen the first cases, the Malloy cases, as well as the other cases at present in Belvidere Hospital, I had no difficulty in diagnosing bubonic plague, for in answer to my question: What is the matter with you? she at once directed my attention to very palpable, painful buboes in each groin. Moreover, she worked beside the other young women who had been to the "wake" in Rose-street and are now in Belvidere Hospital with plague. I learned from her mother that during her illness of 18 days she had been seen twice by a medical man. His first visit was when she sickened and was "raving," and his second visit was 14 days later. On calling on him he informed me that on his first visit her temperature was 104° F., but on his second visit it was normal. He thought, not unreasonably, that the buboes were most probably gonorrhœal. I may add that when I saw her on Sept. 10th her temperature was normal, there was no rash or mottling of the skin, nor was there anything apparently the matter with her but the painful buboes in each groin. Now the two points I wish to emphasise are (1) that unless seen early the temperature, which would be a valuable differentiation sign between plague buboes and gonorrhœal buboes, would be absent; and (2) that in my limited experience in cases where I suspected gonorrhœa in women I have never seen buboes although I often see them in men. I think that the common sequel of gonorrhœa in women is not a bubo but inflammation and suppuration of the vulvo-vaginal or Bartholin's glands. If buboes are a rare sequela of gonorrhœa in women—and an authoritative statement at present on this point might be important—the fact of finding buboes in a woman, even with a history of suspected gonorrhœa, and especially with a rise of temperature, ought at the present time strongly to suggest bubonic plague.

I am, Sirs, yours faithfully,

Glasgow, Sept. 29th, 1900. THOMAS COLVIN.

"INOCULATION AGAINST TYPHOID FEVER."

To the Editors of THE LANCET.

SIRS,—On seeing the leading article on this subject in THE LANCET of Sept. 29th (p. 952), I again studied the official report referred to, but must confess that I can see no reason to modify my criticism of it in the *Times* of Sept. 24th. Paragraph 3 of the report seems quite explicit, and the inoculation was certainly put a stop to at one time. Here is the passage:—

> ..... and it appears to have been understood from the concluding portion of the War Office letter of 24th January, 1898, that the objection of Lord Lansdowne to the introduction of the treatment applied rather to the formal authorisation of inoculation at the public expense than to *voluntary operations at private cost*. Under this supposition the *latter* have been carried out at certain stations (advantage being taken of the presence of Professor Wright in this country as a member of the Plague Commission), though without the sanction of the Government of India or of the Commander-in-Chief. On the facts becoming known, however, *orders were issued to stop further inoculations, and the treatment has accordingly been abandoned.*

The italics are mine. We have a perfectly clear statement, not only that the "inoculation at the public expense" was prohibited, but that when it became known that Professor Wright, then in India on the Plague Commission, was carrying on "voluntary operations at private cost," these, too, were put a stop to. If this is not "express prohibition" of inoculation against typhoid I do not know what is—at all events it seems to have effectually stopped it for a considerable period. That inoculation was resumed after August, 1899, has nothing to do with the question raised by me. I ask *why it was* that the measure was checked in 1898. I submit that though Government might reasonably have refused to encourage "inoculation at the public expense"—though even this was in my own humble opinion thoroughly bad policy—yet they had no justification for going so far as to stop Dr. Wright's private inoculations altogether. In doing so they practically took up the position that the inoculation is *harmful*—that their own leading pathologist was going about poisoning their soldiers. If they did not think so, why did they prohibit the measure?

I am, Sirs, yours faithfully,

Liverpool, Oct. 2nd, 1900. RONALD ROSS, D.P.H.

BERI-BERI.

To the Editors of THE LANCET.

SIRS,—Into the Provincial Hospital, Port Elizabeth, to which I was attached for many years, cases have been admitted from ships arrived from the East the diagnosis of which has been disputed. They have presented symptoms I think common to two diseases—"malaria," so called, and "beri-beri." Being health officer to the port as well as medical officer to the hospital some eight or 10 years ago I sent on shore several members of a crew who had been in an Eastern port. They were stated to have suffered from "fever" more or less for a considerable time; they presented, if I remember rightly, the usual appearance of fever-stricken patients—anæmia, sallow skin, emaciation, and more or less œdema of the limbs, &c.—a picture familiar to anyone who has lived in the East, Mauritius, or Madagascar. It so happened, I think, that the subject of beri-beri was being written and talked about at that time and it became a disputed point whether the men should be allowed to remain in or be removed to the lazaretto. Having on previous occasions admitted men in like condition without ill result following I pressed their being allowed to stay, which was done. No harm came from it, and after good nursing and rest they were allowed to go out to be sent home by steamer on a certificate from me that no harm was to be anticipated. No deaths occurred. Had these been the subject of beri-beri the outcome of the affair, I imagine, would have been very different as regards the patients themselves. I had never seen a case of beri-beri, neither had any of the local medical men. All we knew of the malady was from books. Since then I learn that "beri-beri is an endemic form of 'peripheral neuritis,' pathologically in the same category as diphtheria, alcoholic, and other forms of neuritis."[1] In a late Port Elizabeth paper I learn that cases have occurred in Algoa Bay of a like nature, that the port officer advised their admission into the Provincial Hospital, that the hospital authorities objected, and I believe the men were sent to a lazaretto.

To prevent any further friction in similar cases I should like to be informed in the pages of THE LANCET what is the differential diagnosis between cases of long-standing malaria and the disease called "beri-beri." Some of your readers who have had experience in the East might supply this information with great service to patients and hospital authorities. If there be a well-recognised "bacillus beri-beri," by sending a specimen of blood or local effusion to the nearest bacteriological institute—e.g., that of Graham's Town—this question might be decided at once and acted on. And what is the difference between the bacillus of "malaria" fever and that of beri-beri, if there be any? Is beri-beri considered infectious? It appears to be frequently fatal, hence the necessity of strict care in admitting such cases; but how to prove their nature? From experience I know nothing of beri-beri, but from books only. The difference between extreme cases of malaria and beri-beri is difficult to decide and I apprehend that the bacteriological examination of blood and tissues of these cases is the only scientific guide for action. The evidence of experiment and experience is much desired.

I am, Sirs, yours faithfully,

Oct. 2nd, 1900. F. ENSOR, M.R.C.S.

"ANNUAL REPORT FOR 1899 ON BIRTHS, DEATHS, AND MARRIAGES IN IRELAND."

To the Editors of THE LANCET.

SIRS,—In thanking you very heartily for the complimentary remarks you were pleased to make in your review in THE LANCET of Sept. 29th, 1900 (p. 963), of the Annual Report of the Registrar-General for Ireland for 1899 on my meteorological observations I wish to correct

[1] Brit. Med. Jour., Oct. 13th, 1894.

a slight error into which you have fallen. You speak of observations taken by me at my country residence in county Wicklow. I have no country residence, and for the observations in question I am indebted to my friends, Mr. R. Cathcart Dobbs, C.E., J.P., of Knockdolian, Greystones, county Wicklow, and Dr. B. H. Steede, the able resident medical superintendent of the National Hospital for Consumption for Ireland, which is situated near Newcastle, county Wicklow. This is now a fully equipped second order meteorological station at which observations of great value are being systematically taken.

I am, Sirs, yours faithfully,
JOHN W. MOORE, M.D. Dub., P.R.C.P. Irel.

Dublin, Oct. 1st, 1900.

THE SMOKE NUISANCE.

To the Editors of THE LANCET

SIRS,—The Coal Smoke Abatement Society is in no sense moribund. The funds at present at its disposal only admit of the employment of two inspectors, who are constantly at work, and whose reports are submitted to the committee every fortnight. These show that the state of London as regards the smoke nuisance is improving but little, and this is due entirely to the negligence of vestries (and more than negligence) in enforcing the Act and the apathy of the London County Council and Parish councils. This negligence and apathy are due to various causes; prominently in the vestries and parish councils the offenders are members or friends of members. Until the law is changed and the responsibility of prosecution is withdrawn from the vestries and reinstated in the hands of the police there is little chance of a real diminution of the evil. Jobbery is rife and bribery is constant. Reports which our inspectors have laid before the County Council, parish councils, and the vestries have been ignored or given the lie to by inspectors employed by those bodies. Members of my committee, myself included, have verified our inspectors' reports, and we know them to be true. We equally know that representations furnished by their inspectors to the County Council, parish councils, and vestries have been false. A meeting of my committee will be held at 14, Buckinghamgate, on Thursday, Oct. 11th, at 5 P.M. I am going to try to call a public meeting at St. James's Hall as soon as the elections are over, when I feel sure that you will give us your valuable aid from the point of view of health.

I am, Sirs, your obedient servant,
Hammersmith, Oct. 2nd, 1900. W. B. RICHMOND.

To the Editors of THE LANCET.

SIRS,—Every inhabitant of London will be thankful to you for drawing attention to the smoke nuisance. At the present moment I am engaged with a great number of other inhabitants in South London in combating the nuisance caused by the smoke from the chimney of the South London Electric Light Corporation. The said chimney emits volumes of black smoke which partly emanates from burning refuse from the streets of the parish of Lambeth. The Electric Light Corporation has on several occasions been fined for the smoke nuisance, but they simply pay the small fine inflicted each time somebody takes the trouble to institute proceedings and the nuisance goes on as before.

The inhabitants of Lambeth, as well as those of Camberwell, have issued memorials to compel the Lambeth parish to take action, but we fear that the fact of the vestry having a contract with the South London Electric Light Corporation for the burning of their street refuse will make them very reluctant to take such action as they are otherwise compelled by Act of Parliament to institute. The smoke contains gases coming from the consumed refuse which are of the most objectionable description and, in my opinion, are necessarily injurious to health. We are very thankful for the assistance we receive from journals of such importance as yours, as only condemnation by public opinion may succeed in compelling the vestry authorities to do their duty.

I remain, Sirs, yours faithfully,
Oct. 2nd, 1900. L. R.

VACCINATION PROSECUTION.—At the Gloucester City police-court on Sept. 28th six persons were summoned for neglecting to have their children vaccinated. All the cases were eventually dismissed as the vaccination officer was unable to prove service of the notices to vaccinate.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Rebuilding of the Manchester Royal Infirmary.

A REVOLT against the ascendancy of the pavilion plan of hospital building has taken place. Some time ago a special committee was appointed by the trustees of the Manchester Royal Infirmary which has had the proposal to build a new infirmary under consideration, and a special committee of 11 members—seven elected by the board of management and four by the medical board—was then appointed "to deal with the question of ascertaining whether or not a hospital suitable in every way could be built on a plan other than the pavilion system." The medical board expressed the opinion that it was uncertain whether the pavilion system was as absolutely perfect as it had been thought to be and that it might be well to consider whether some other system which required less ground could not be adopted. Opinions on the subject were requested from Lord Lister, Sir William Mac Cormac, Sir Thomas Smith, Sir Samuel Wilks, Professor Macewen, Professor Thomas Annandale, Dr. T. Clifford Allbutt, Dr. J. F. Goodhart, Mr. Frederick Treves, Mr. Howard Marsh, and Mr. Timothy Holmes. Of these, Lord Lister, Sir Thomas Smith, Professor Macewen, and Sir William Mac Cormac thought that the pavilion plan was ideally the best, but that it was quite possible to build a satisfactory infirmary "on other than the pavilion system." Mr. Holmes was opposed to the pavilion plan, and Mr. Marsh considered that it was not only not essential but that it was in some respects inconvenient and open to positive objection. Dr. Clifford Allbutt and Professor Annandale thought that the pavilion form was the best. Dr. Goodhart, Mr. Treves, and Sir Samuel Wilks expressed no opinions. The report of this committee was considered by the board of management on Sept. 24th, and after discussion it was accepted unanimously. Mr. J. Hardie, the chairman of the medical board, wrote: "Our report is really a most important one. I know of none to equal its importance. Not only has no consensus of professional opinion been before obtained, but no such inquiry as we have made has ever been carried out. Hitherto it has been thought that medical opinion was wholly in favour of the pavilion plan exclusively. We have found that that is a complete mistake. The consequence of this is that in future hospital authorities will be less fettered and will give effect to their wishes at lessened cost." It was resolved that the special committee should be instructed to carry out the second part of the resolution adopted by the board of management on Feb. 9th which gives authority to take steps to obtain suitable plans and estimates and to incur any necessary expense in connexion therewith. Everything, therefore, seems to promise plain sailing for the scheme of rebuilding on the present site. But the present site is not the best for the infirmary in every respect, though it is the best for a much-wished-for scheme that might be carried out if the corporation could only purchase the whole of the ground. A noble art gallery and free library could be built on the site if the corporation could afford to buy it, and a hospital might be built elsewhere on a site more suitable to the present condition of the town, and according to plans embodying modern knowledge and wisdom so far as attainable. But the corporation has great schemes on hand that draw heavily on its resources, so the question is whether it can afford to buy the ground. On the other hand, no encroachment on the open space round the infirmary will be allowed and it is very doubtful if the increase of hospital accommodation urgently required can be obtained without extending the present area of the building. So that it seems as if, to quote a leading article in one of the local papers, "the new century will open with matters in about the same position as they were seven years ago."

Various Sewage Difficulties.

In THE LANCET of August 11th, 1900 (p. 464), the condition of the "Black Brook," which diffuses its noxious odours most liberally as it flows through Birch Park, one of the open spaces of Manchester, was mentioned in terms perhaps scarcely strong enough to express truly its pre-eminence as a nuisance. It is satisfactory, therefore, to know that the Reddish Urban District Council have been fined £20 for one case of pollution and £5 for a second, with £5 costs. The Mersey and Irwell Joint Committee

made an order as to the purification of the stream so long ago as 1894, but with as little result as if the council had been composed of Chinese mandarins. The council now, however, promise immediate attention to the sewage works and in the meantime they will take temporary steps for the abatement of the nuisance. It is intimated that the Gorton Urban District Council are likewise about to be summoned for fouling the brook. At the meeting of the Prestwich Urban District Council on Sept. 12th it was said that they were doing everything possible for dealing with the sewage. But as to a scheme for the Rainsough part of the district they had a grievance against the Local Government Board, and the facts seem really to justify the heading of a paragraph in a local journal—"The Strange Ways of the L. G. B." The Board suggested certain alterations in the scheme of the council which would add £162 to the cost. To save time the alterations were accepted and an application was made for leave to borrow the extra money, but no reply was received and the work was therefore delayed. The council did not seem to think that that was fair treatment and they considered that if the Board brought district councils into existence it ought to help them to carry out their work. As a member said: "People talked about the state of the War Office, but that was nothing in comparison with the state of the Local Government Board." On this point there is a remarkable unanimity among district councils. The Withington Urban District Council and the Stretford Urban District Council are suffering from somewhat strained relations, for the sewage farm of the former offends the senses of the clients of the latter, and the Local Government Board have written a letter on the subject, to which the clerk and surveyor of the Withington Council have "been instructed to prepare a suitable reply." They are also informed by the Mersey and Irwell Joint Committee that their "effluent after land treatment was very unsatisfactory on July 2nd and 10th." The clerk was instructed "to explain the position of the council," which position the committee no doubt know quite well, "and to state that they were doing all in their power to improve matters." These are wholesome signs of activity, and real work is being done to lessen the pollution of the streams. The consequences of ignorance and neglect in times gone by may press somewhat heavily nowadays, but the noxious and disgusting condition of most of our streams is such a disgrace to the civilisation of the day that the crusade against it must be carried out to a successful termination. Since the above was written the Gorton District Council have been fined a nominal sum on promise of constructing additional works within six months to deal with the increased quantity of sewage. Five years ago sewage works were constructed, but since then the population has increased from 16,000 to nearly 30,000, and they are now inadequate. At the meeting of the Heaton Norris District Council on Sept. 20th the pollution of this now notorious brook—in this part of its course called Gore Brook—was mentioned as greatly affecting Heaton Norris, and satisfaction was expressed "that so firm a stand had been taken by the Mersey and Irwell Joint Committee."

Oct. 2nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Threatened Outbreak of Bubonic Plague.

No case of bubonic plague has occurred in Dublin. Some alarm was, however, caused recently by the report that a sailor on board a vessel which had just arrived from Glasgow was suffering from illness. Dr. J. M. Day of Cork-street Fever Hospital, who had taken the precaution to make himself familiar with the symptoms of bubonic plague in Glasgow, made an examination of the man and pronounced that the disease was not plague. It seems very fortunate that no cases have occurred in Dublin, for the difficulty about isolation still exists. Mr. Ryan, the public health officer of the Glasnevin district, reported to the rural district council on Sept. 26th that Beneavin, the house proposed to be used for the reception of plague patients, was unsuitable because it was situated by the side of the public road and within a very short distance of the town and of the congested district of Finglas. The sanitary arrangements were, moreover, stated to be defective and objectionable. It was decided to send a copy of the report to Sir Charles Cameron.

The New Veterinary College in Dublin.

A deputation from the new Veterinary College waited on the Pembroke Urban Council on Oct. 1st in reference to some opposition to the site of the new buildings. The deputation comprised Sir Christopher Nixon, Sir Thornley Stoker, Professor George Fitzgerald, F.T.C.D., Sir Charles Cameron, C.B., Mr. James Talbot Power, D.L., and Professor Mettam, principal of the college. Sir C. Nixon urged the council not to oppose the institution and he expressed the regret of the governors of the college that their architect had failed to submit their temporary plans to the council. The authorities were pledged to open the college to students on Oct. 3rd and some alterations in the present buildings were necessary until the permanent offices of the college should be ready. The permanent buildings, he went on to state, would cost about £25,000 and would be of the most up-to-date type. He believed that this college was of the greatest importance to the national and scientific interests of the country, and he hoped that the council would not throw any difficulties in the way of its establishment. After the withdrawal of the deputation the council passed a motion that the plans of the permanent buildings of the college should be sent to the surveyor of the council for a report by him to the Public Health Committee.

Meath Hospital and County Dublin Infirmary.

The vacancy on the surgical staff of the Meath Hospital caused by the lamented death of Sir William Stokes was filled on Sept. 27th by the election of Mr. Richard Lane Joynt, M.D. Dub., F.R.C.S. Irel.

St. Vincent's Hospital, Dublin.

The introductory address in St. Vincent's Hospital for the present medical session was delivered on Oct. 2nd by Dr. M. McHugh, who dealt with the threatened outbreaks of bubonic plague. Sir John W. Moore, President of the Royal College of Physicians of Ireland, occupied the chair.

The Belfast Workhouse Children.

At a meeting of the Belfast Board of Guardians on Sept. 25th a letter was read from the Local Government Board for Ireland relative to what they term a "fraud" practised for an unascertained period on the children of the workhouse by the abstraction of a large portion of their daily food, and the Local Government Board characterise the action of the officers concerned in allowing such a condition of things to exist as most discreditable. They suggest certain plans to check these "disgraceful irregularities" and they urge upon the guardians the necessity of continuing to use every effort to eradicate the abuses which have crept into the management of the workhouse and are gradually being brought to light, and they consider that the vigilant action of the infirmary committee in discovering the particular fraud referred to is a striking proof of the good results to be anticipated from frequent inspections by intelligent visiting committees. It would seem that children who were supposed to get eight ounces of bread were only getting four and a half, and the full allowance of milk was also withheld.

Irish University Education.

The Council of the Royal University of Ireland Graduates' Association have issued a statement on the eve of the general election in relation to Irish University education. There are now 5000 graduates of the Royal University who should have considerable influence in guiding public opinion on such a subject and they, as well as graduates of the old Queen's University, are requested to support those candidates who endorse the programme on Irish University education which this association recommends: (1) The association objects to sectarian universities; (2) it objects to persons professing any particular religious creed having any special advantages or endowments on that account as contrary to justice and all modern ideas; (3) the association recommends that the affairs of Trinity College, of the University of Dublin, and of the Royal University should be investigated. The examination of the affairs of Trinity College should be conducted (the association recommends) from several points of view: (*a*) As to finances. The authorities of Trinity College refuse, it is said, to give any information on this point. In 1873 Mr. Gladstone estimated the income as £78,000 a year and its expenses as £66,000, and he considered Trinity College the most richly endowed college in Christendom. Owing to reduction in rents and other causes its income has very much shrunk, and unless it can effect economies or receive further private or Government aid, it will

not be able, according to the published statement of the provost, to provide the costly equipment for modern scientific teaching. So closely are the financial secrets of Trinity College guarded that even now the authorities would not vouch for the accuracy of Mr. Gladstone's figures. It is clear that inquiry is urgently needed. (*b*) As to the educational work it does and has done, and especially as to what extent it has benefited the people of Ireland. Information on this matter of a startling nature is found in the Calendar of Dublin University for 1898, where there are on the roll 4534 voters who may be classified as follows:—Divinity graduates, 2145; medical graduates, 624; arts graduates, 1518; law graduates, 211; music graduates, 34; engineering graduates, 2; total, 4534; which shows that Trinity College is resorted to for professional training and not for education for its own sake. The predominance of divinity is manifest and of these divinity graduates it is curious that while there are 832 in Ireland, there are 1150 in other parts of the United Kingdom; but these figures do not represent the importance of the divinity school, for the greater number of students in that faculty do not proceed to a theological degree in Trinity, but are satisfied with what is known as a testimonium in divinity. For a period of 58 years—from 1840 to 1897—3339 testimoniums were granted; in other words, an average of 57 per annum. (*c*) As to whether Trinity College is sectarian or not. (*d*) As to whether its divinity school should be removed. 4. The Royal University should be placed under suitable representative government like the Victoria University, the London University, and the Birmingham University. 5. There should be an endowment for the Royal University and its colleges proportionate to that of Trinity College and the University of Dublin. In Trinity College there were 1047 students in the year 1899, whereas 2608 students entered for the examinations of the Royal University in the previous year. The numbers for the last year (not yet ascertained) will probably show little difference. In point of numbers the Royal University is of about three times the importance of Dublin University. With a coördination of primary, intermediate, and university education, and the more economic and purposeful use of the large funds of the Intermediate Board, the Royal University and its colleges would have an era of great prosperity in prospect. All these matters must be taken into account in estimating proportionate endowment. 6. If Parliamentary representation of universities continues the Royal University should have two representatives. The following tabular statement showing the university degrees and the residences of the graduates on the electoral roll of the University of Dublin is added to the statement published by the Council of the Royal University of Ireland Graduates' Association:—

—	Divinity.	Medicine.	Arts.	Law.
Ireland	832	244	739	118
Other parts of the United Kingdom	1150	290	378	47
Colonies and dependencies.	53	29	45	17
Other countries	76	27	60	7
No address	34	34	296	22
Total	2145	624	1518	211

34 students graduated in music and two in civil engineering, making a grand total of 4534.

Medical Candidates for Parliament.

The following members of the medical profession are candidates for Ulster seats in the Imperial Parliament: Dr. J. King Kerr, J.P. (who is a member of the Belfast City Council), for East Antrim; Dr. E. C. Thompson (surgeon to the Tyrone Infirmary, Omagh), for South Tyrone; Dr. Charles O'Neill of Coatbridge, Scotland, for South Armagh; and Dr. O'Connell for East Cavan. Mr. J. Smyth Crone, chairman of the Willesden District Council, who is contesting the Harrow division of Middlesex is an old Belfast Queen's College student.

The Battle of the Clubs at Cork.

The Ancient Order of Foresters have accepted the rules of the medical profession in Cork and their former medical officer, Dr. Giusani, has been duly reinstated. When Dr. Giusani resigned some years ago the number of members in the club was 250. Since then they have had in succession two or three of the imported medical men. Things evidently did not prosper as the membership gradually dwindled, and this once prosperous club can now count not quite 100 members on its books. This remarkable disintegration is steadily going on in other clubs in Cork. Many of the more common-sense members resign and those who remain when threatened with extinction indulge in a process of introspection and discover that the medical men of Cork had much to complain of and that their desire to be paid fair remuneration was only in accordance with what the artisans and working-classes in Cork demanded for themselves.

Oct. 2nd.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Reforms in the Management of the Elmira Reformatory.

THE enforced resignation of Mr. Brockway, the distinguished superintendent of the Elmira Reformatory, has attracted public attention to this justly famous institution. An authority on the management of penal institutions states that the superintendent was severely criticised for using a cruel method of corporal punishment—viz., the use of the paddle. But this was not a necessary part of his reformatory scheme. It was rather a personal element which could be omitted without affecting the fundamental principles which he developed. Mr. Brockway was the originator of a new plan of dealing with young criminals in which corporal punishment played only a subordinate part. The Brockway plan was based on the theory that crime is a disease which can be cured in the majority of cases, if the offender is properly dealt with, before the malady becomes chronic. Deterrent penalties are fixed with little regard to their effect on individual criminals. Mr. Brockway's new idea of punishment was to work a reform in the criminal. The aim of the treatment was to be remedial rather than deterrent; penalties should be adapted to individual cases. The best way to protect society, according to this new theory, is to cure criminals instead of merely punishing crimes. This is the theory that Mr. Brockway put into practice in the Elmira Reformatory which he directed for 24 years. The most important devices that he adopted in carrying out his idea are the indeterminate sentence and the parole. The length of the period of confinement depends upon the behaviour of the individual. The inmates are graded according to an elaborate system of marks and credits. Perfect conduct may secure a parole in 14 months, but persistent violation of the rules will detain the offender for the maximum term of his sentence. A paroled person is required to report regularly to a designated officer in the city or town where he resides. If he complies with the requirements he is finally discharged when his parole expires, otherwise he is re-committed. These two devices are the really essential features of the Brockway plan.

Improved Quarantine Regulations.

The extension of the quarantine system of the United States to Cuba has proved the importance of international maritime sanitary regulations. The United States Marine Hospital Service now administers the quarantine of the Cuban ports, and as a result it appears that vessels disinfected in Cuba in accordance with the United States quarantine regulations and receiving a certificate to that effect from the medical officer of the Marine Hospital Service, are, upon arrival at the ports of the United States, considered as having been under observation during the time which has elapsed at sea since disinfection, provided no illness of a suspicious nature has occurred on board, and thus their time of detention at the quarantine stations of the United States is much lessened. This shortening of the time of detention at the ports of the United States has been a great help to commerce, while at the same time the protection to the United States is as great as was afforded under the former methods, or even greater.

The Health of Manila.

Major Guy L. Edie, a surgeon in the United States Army and President of the Board of Health of Manila, Philippine Islands, makes a very interesting report.

Besides the several functions belonging to a board of health in supervising all works and conditions affecting public health the board has general supervision of charitable institutions, prisons, and venereal hospitals and the direct control of the vaccine farm, the municipal chemical and bacteriological laboratories (which the board organised), free dispensaries, and hospitals for leprosy, small-pox, and bubonic plague. In matters of vital statistics the board claims accuracy as yet only for its record of mortality. The work of vaccination has made its impress upon the mortality from small-pox. For the nine months from October, 1899, to June, 1900, there were seven deaths from small-pox in the city, while in the month of March, 1899, there were 75 deaths from this disease. The work of vaccination was effected with great difficulty, as the authorities did not consider it advisable to make vaccination compulsory. During the year 622,030 points of vaccine virus were furnished to the army and navy of the United States and to native inhabitants of the archipelago outside the city of Manila. In the city and suburbs 114,654 vaccinations were effected. The total number of deaths during the nine months, October, 1899, to June, 1900, inclusive, was 8535, of which 3507 were of children under five years of age. The population is variously estimated at from 350,000 to 600,000. During the same period diarrhœal cases resulted in 1073 deaths; tuberculosis caused 992 deaths; beri-beri, 642; acute lung diseases, 631; malarial fever, 338; typhoid fever, 41; bubonic plague, 167; leprosy, 46; and small-pox, seven. Besides the 167 recorded from plague, a number averaging about 50 per month occurred in the Chinese quarter, without medical attendance and unreported, some of which were probably due to plague. Only one death occurred from plague among Americans, and that was in the case of a quartermaster's employé. The total number of cases of plague reported was 225, the sufferers in only 58 of which cases recovered. The opinion formed by Major Edie from his experience of the last six months is to the effect that little difficulty will be experienced in controlling the disease in any intelligent community with modern sanitary conditions.

Restricting Prostitutes to Certain Districts.

The Supreme Court of the United States has decided in the case of the Church Extension Society *versus* the City of New Orleans that it is unlawful for any public prostitute or woman notoriously abandoned to lewdness to occupy, inhabit, live in, or sleep in any house, room, or closet situate without certain prescribed limits of the city, with a proviso that nothing in the ordinance should be so construed as to authorise any lewd woman to occupy any house, room, or closet in any portion of the city. The question presented to the court was whether one who may own or occupy property in or adjacent to the prescribed limits in the city, whether occupied for a residence or for other purposes, can prevent the enforcement of such an ordinance on the ground that by it his rights under the Federal Constitution are invaded. With nothing in the ordinance to deny the ordinary right of the individual to restrain a private nuisance the court does not consider it one of which complaint could be made by such owners or occupants of property as stated, notwithstanding that the pecuniary value of their property might be depreciated thereby. The management of those vocations which feed upon and minister to human weaknesses, appetites, and passions, the court continues, come directly within the scope of what is known as the police power. Obviously, the regulation of houses of ill-fame and legislation in respect to women of loose character may involve one of three possibilities: (1) absolute prohibition; (2) full freedom in respect to place, coupled with rules of conduct; and (3) a restriction of the location of such houses to certain defined limits. Whatever course of conduct the legislature may adopt is, in a general way conclusive upon all courts, State or Federal. It is no part of the judicial function to determine the wisdom or folly of a regulation by the legislative body in respect to matters of a police nature.

Measurements of School Children.

The Chicago Board of Education have established a department called "Child-Study and Pedagogic Investigation." The examination is undertaken for the purpose of determining the mental and physical status of the school-children. Examinations were at first limited to the determination in each pupil of the following points: height, height sitting, weight, ergograph work, strength of grip right and left, hearing right and left, and acuity of vision. In addition to this obvious developmental defects have been noted. The number of children examined down to the present time is 5636. The conclusions thus far reached are that there is a physical basis of precocity, that dull children are lighter and precocious children heavier than the average child, and that mediocrity of mind is associated with mediocrity of physique. A similar result was obtained in the examination of 33,500 school-children in St. Louis in 1892 by Dr. W. T. Porter. The action of the Chicago Board of Education in establishing this department of inquiry into the mental and physical condition of the school-children of that city is the first instance in America of a municipal board appropriating money for research work and it is a fact which redounds greatly to their credit.

Sept. 18th.

Medical News.

UNIVERSITY OF DURHAM.—At the Convocation held on Sept. 22nd the following degrees and diploma were conferred:—

Doctor in Medicine.—Joseph Ellis Baker, M.B., B.S. Durh.; Francis William Clark, M.B. Durh. (*in absentiâ*); Ronald Angus Dalrymple Daniel, M.B. Durh.; Ernest Edward Frazer, M.B., B.S. Durh.; John Campion Grinling, M.B. Durh.; Christopher Michael O'Brien, M.B., B.S. Durh.; Lewis William Richards, M.B., B.S. Durh.; Frederic Reginald Sutton, M.B., B.S. Durh.; and Maurice Dale Wood, M.B., B.S. Durh.

Doctor in Medicine (Practitioners of 15 Years' Standing).—John Jackson Berry, L.R.C.P. and S. Edin.; William Henry Crosse, M.R.C.S., L.F.P.S.G., L.S.A.; Charles Ernest Goddard, M.R.C.S., L.R.C.P.; Charles James Hancock, M.R.C.S., L.R.C.P. Edin., L.S.A.; Richard Crawshaw Holt, L.R.C.P., F.R.C.S. Edin.; Maurice Edward Ling, M.R.C.S., L.S.A.; Henry Lloyd, M.R.C.S., L.S.A.; Robert Arthur Milligan, M.R.C.S., L.R.C.P.; Alexander Dryden Moffat, L.R.C.P. and S. Edin.; Gordon Fitzherbert Nicholls, L.R.C.P. and S. Edin.; Thomas Godfrey Parott, M.R.C.S., L.R.C.P.; George Samuel Sims, M.R.C.S., L.R.C.P., L.S.A.; John Sinclair, M.R.C.P., M.R.C.S., L.S.A.; Matthew Carrington Sykes, M.R.C.S., L.R.C.P., L.S.A., D.P.H.

Doctor in Hygiene.—William Edmund Harker, M.D., B.S., B.Hy.

Master in Surgery.—Henry Brunton Angus, M.B., B.S., M.R.C.S., L.R.C.P.

Bachelor in Medicine (M.B.).—Reginald Alderson, College of Medicine, Newcastle-upon-Tyne; Hedda Alström, London School of Medicine for Women; Edward Turner Born, James Robert Burn, and Frank Wilfred Burn, College of Medicine, Newcastle-upon-Tyne; Stanley Cornell Clapham, M.R.C.S., L.R.C.P., Guy's Hospital; Mary Jane D'Vaz, London School of Medicine for Women; Evelyn John Evatt, College of Surgeons, Dublin; Thomas Haylock Hulme, London Hospital; Ralph Tennyson Jupp, Mason College, Birmingham; Frederic William Lambelle, John Henry Martin, Robert Atkinson Morland, Thomas Smirk Percival Parkinson, and Robert Peart, College of Medicine, Newcastle-upon-Tyne; Philip Meyler Perkins and Claude Maxwell Pennefather, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; Eleanor Shepheard, London School of Medicine for Women; Leonard Satchwell Smith, Mason College, Birmingham; Harold Robert Dacre Spitta, St. George's Hospital; Harry Carlile Sturdy, M.R.C.S., L.R.C.P., Guy's Hospital; Sydney Duke Turner, M.R.C.S., L.R.C.P., D.P.H., St. Thomas's Hospital; and Robert Walker, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital.

Bachelor in Surgery (B.S.).—Reginald Alderson, College of Medicine, Newcastle-upon-Tyne; Hedda Alström, London School of Medicine for Women; James Robert Burn and Frank Wilfred Burn, College of Medicine, Newcastle-upon-Tyne; Stanley Cornell Clapham, M.R.C.S., L.R.C.P., Guy's Hospital; Mary Jane D'Vaz, London School of Medicine for Women; Evelyn John Evatt, College of Surgeons, Dublin; Ralph Tennyson Jupp, Mason College, Birmingham; Frederic William Lambelle, John Henry Martin, and Robert Atkinson Morland, College of Medicine, Newcastle-upon-Tyne; Philip Meyler Perkins, St. Bartholomew's Hospital; Robert Peart and Thomas Smirk Percival Parkinson, College of Medicine, Newcastle-upon-Tyne; Claude Maxwell Pennefather, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; Harold Robert Dacre Spitta, St. George's Hospital; Eleanor Shepheard, London School of Medicine for Women; Leonard Satchwell Smith, Mason College, Birmingham; Harry Carlile Sturdy, M.R.C.S., L.R.C.P., Guy's Hospital; Sydney Duke Turner, M.R.C.S., L.R.C.P., D.P.H., St. Thomas's Hospital; and Robert Walker, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital.

Diploma in Public Health (D.P.H.).—William Hardcastle, M.B., B.Hy., M.R.C.S., L.R.C.P.

GUY'S HOSPITAL MEDICAL SCHOOL.—The following Entrance Scholarships and Certificates have been awarded. Senior Science Scholarship for University Students (£50): Mr. A. R. Brailey, Downing College, Cambridge, and Mr. S. W. Cole, Trinity College, Cambridge (equal £25 each), and a Certificate to Mr. D. M. Hughes, University College, Cardiff. Junior Scholarships in Science: £150 to Mr. R. W. Allen, University College, Auckland; £60 to Mr. C. M. Wenyon, University College, London; and Certificate to Mr. H. Thomas, Kingsholme School, and Mr. F. H. Lennox-Jones, Latymer Upper School. Entrance Scholarships in Arts: £100 to Mr. H. O. Brookhouse, Blackheath School; £50 to Mr. W. H. Dencer, Colfe Grammar School; and Certificates to Mr. G. Cockcroft, Rossall School,

Mr. T. B. Layton, Bradfield College, and Mr. G. F. E. Allison, Rossall School.

UNIVERSITY COLLEGE, LONDON.—The following Scholarships and Exhibitions have been awarded. Medical Entrance Scholarships: Bucknill Scholarship, £30 a year for four years and 55 guineas Scholarship (equally divided), H. T. Mant and W. S. Sweet; 55 guineas Scholarship, H. E. Dyson. Medical Exhibitions: 76 guineas each, C. W. Forsyth and A. M. H. Gray.

CHARING-CROSS HOSPITAL MEDICAL SCHOOL.—The following Entrance Scholarships have been awarded: Livingstone Scholarship (100 guineas) to Mr. John Heatly Spencer; Universities Scholarships (each 60 guineas) to Mr. C. Rolleston (Oxford University) and Mr. H. M. Joseph (Cambridge University). Entrance Scholarships have also been awarded to Mr. A. G. Whitaker (40 guineas) and to Mr. Alfred Dinnis (30 guineas).

UNIVERSITY OF CAMBRIDGE.—Dr. L. Humphry has been appointed Assessor to the Regius Professor of Physic for the ensuing year. In his address on resigning office the Vice-Chancellor alluded to the progress made with the plans for the new medical school buildings and to the need for further contributions towards the cost of their erection. The new arrangement with Addenbrooke's Hospital was described as being advantageous alike to that institution and to the university. Rooms for work in clinical pathology, bacteriology, &c., have just been erected by the staff and presented as a gift to the hospital. They will be open for work under the direction of Professor Sims Woodhead during the present term. The open colonnades in front of the hospital, which look south over the grounds, are, by the liberality of Mrs. Peart, to be adapted for open-air treatment.

THE WORSHIPFUL COMPANY OF PLUMBERS.—At the quarterly meeting of the court held at the Guildhall on Sept. 29th Mr. Charles Hudson was sworn into the office of Master, and Mr. Alderman Richard Hind and Alderman Sir John Knill, Bart., were sworn into the offices of Warden and Renter Warden respectively. Dr. F. J. Waldo, medical officer of health of the Temple and St. George's Southwark, and Dr. Reginald Dudfield, medical officer of health of Paddington, were admitted to the freedom and livery of the Company. A copy of a memorial to the Right Honourable A. J. Balfour was laid before the court calling attention to the desirability of the Government dealing with the registration of qualified plumbers in the interest of the public health, and bearing the signatures of Lord Aberdeen, Sir Charles Cameron, medical officer of health of Dublin, the Lord Provost of Aberdeen, Professor W. R. Smith, King's College, London, Professor Matthew Hay, Aberdeen University, and other chief officers of the Congress of the Royal Institute of Public Health held at Aberdeen, and about 600 delegates and members representing sanitary authorities, architects, colleges, hospitals, school boards, and other bodies in various parts of Great Britain and Ireland. It was reported that the following resolutions were passed at the Tenth International Congress of Hygiene and Demography held at Paris:—

1. That all plumbers' work, as much in the supply of drinking water as in the removal of soil or slop water, should be the object of particular attention. The pipes for the distribution of water, as well as the hydraulic apparatus (reservoirs, syphons, &c.), and the down pipes for slop water, should be completely protected from frost.

2. That a professional education with a test examination before obtaining a diploma should be demanded of "sanitary plumbers" with a view to spreading among plumbers a knowledge of hygiene and of rational and economic construction in their work.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

ARMOUR, DONALD JOHN, B.A., M.B. Tor., M.R.C.P. Lond., F.R.C.S. Eng. has been appointed an Associate to the Professor of Anatomy, Rush Medical College, Chicago, U.S.A.

BARNES, E. G., M.D. Lond., M.R.C.S., has been re-appointed Medical Officer of Health by the Hartismere District Council.

BURNS, WM. C., M.B., Ch.B., has been appointed Resident Medical Officer to the Infirmary, Glasgow, vice Inman, resigned.

CHURCH, ANNA L., M.D. Irel., has been appointed Medical Superintendent to the Lady Aitchison Hospital, Lahore, Punjaub, vice Miss Beilby, M.D., resigned.

CRABTREE, W., B.Sc. Vict., M.B., Ch.B., has been appointed Medical Officer for the Workhouse of the Stoke-upon-Trent Union, vice C. D. Outred, resigned.

CROSS, FRANCIS RICHARDSON, M.B. Lond., F.R.C.S. Eng., has been appointed Honorary Consulting Ophthalmic Surgeon to the Bristol Royal Infirmary.

DUKE, A. S., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been re-appointed Medical Officer for the Midland Sanitary District of Midhurst.

DURRANT, CHARLES E., L.R.C.P. Lond., M.R.C.S., has been appointed House Physician to the General Lying-in Hospital, York-road, London.

GILLIBRAND, WM., L.R.C.P. Irel., M.R.C.S., has been appointed a Medical Referee under the Workmen's Compensation Act, 1897, and to act for Bolton in County Court Circuit No. 5.

GIMSON, K. C., M.B., B.C. Camb., has been appointed Certifying Surgeon under the Factory Acts for the Witham District of Essex.

GRANT, DUNDAS, M.A., M.D., F.R.C.S. Eng., has been appointed Surgeon to the Royal Academy of Music, Tenterden-street, Hanover-square, London.

INGRAM, J., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer of Health for the Warsop Urban Sanitary District, vice H. Hewer, resigned.

JOYNT, R. L., M.D. Dub., F.R.C.S. Irel., has been appointed Surgeon to the Meath Hospital, vice Sir William Stokes, deceased.

MARTIN, ERNEST W., M.B., Ch.B., has been appointed Resident Medical Officer to the City of London Hospital for Diseases of the Chest, Victoria-park, E.

MILLIGAN, W. A., M.A., M.B., C.M., F.R.C.S. Edin., has been appointed Anæsthetist to the Great Northern Central Hospital, Holloway-road, N.

NEWBY, THOS., M.D. St. And., M.R.C.S., has been re-appointed Medical Officer of Health for the Cleethorpe Sanitary District.

O'DONOGHUE, J., L.R.C.P., L.R.C.S. Irel., has been appointed Medical Officer for the Howth Dispensary District, Dublin.

OGILVY, ALEXANDER, B.A., M.D., B.Ch., B.A.O. Dub., F.R.C.S. Irel., has been appointed Honorary Ophthalmic Surgeon to the Bristol Royal Infirmary, vice F. Richardson Cross, resigned.

PICKFORD, J. S., L.R.C.P. Lond., M.R.C.S., has been re-appointed Medical Officer of Health by the Little Lever District Council.

RHYS, OWEN L., M.B., Ch.B. Edin., has been appointed Assistant House Physician to the Cardiff Infirmary.

ROSS, R. H., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer to the Whitehead Constabulary, Ireland.

SMITH, H. ENSLIE, M.B., C.M., has been appointed Junior House Surgeon to the Great Northern Central Hospital, Holloway-road, N.

SMITH, W. R., M.D. Lond., B.S., L.R.C.P., M.R.C.S., F.R.C.S. Eng., has been appointed Medical Officer for the Beeston and Wollaton Sanitary District of the Bosford Union, vice J. Orton, deceased.

SYMES, JOHN ODERY, M.D. Lond., M.R.C.S., L.R.C.P., D.P.H. Lond., has been appointed Honorary Physician to the Clergy Daughters' School, Bristol, vice E. Markham Skerritt, resigned.

WATERS, J. F. W., M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon and Secretary to the West Norfolk and Lynn Hospital, King's Lynn.

WINDLE, B. C. A., D.Sc. Dub., M.D., has been appointed a Representative on the General Council of Medical Education by the Council of the University of Birmingham.

WINDLE, J. D., M.B., Ch.B. Vict., L.R.C.P. Irel., L.R.C.S. Edin., M.R.C.S., has been re-appointed Medical Officer of Health by the Southall-Norwood Urban District Council.

WRIGHT, C. F., M.R.C.S., has been re-appointed Medical Officer for the Rishangles Sanitary District, Hartismere Union.

WRIGHT, H. T., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the No. 2 Sanitary District of the Parish of Alston-with-Garrigill, vice E. W. Short, resigned.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BRADFORD ROYAL INFIRMARY.—House Physician for 12 months, unmarried. Salary £100 per annum, with board and residence.

CHILDREN'S HOSPITAL, Nottingham, St. Peter's Church Walk, Nottingham.—House Surgeon (non-resident) for six months. Salary at the rate of £100 per annum.

CITY OF LONDON ASYLUM, near Dartford, Kent.—Second Assistant Medical Officer and Pathologist, unmarried. Salary £150 a year, with board (except liquors), furnished apartments, washing, and attendance. Apply to the Clerk to the Visiting Committee, Guildhall, London, E.C.

CORPORATION OF BIRMINGHAM CITY FEVER HOSPITAL, Lodge-road.—Second Assistant Medical Officer. Salary £120 per annum, with board, residence, &c.

COUNTY ASYLUM, Chester.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, rising £10 yearly to £160, with board (no liquors), lodging, and washing.

COUNTY ASYLUM, Lancaster.—Assistant Medical Officer. Commencing salary £125 per annum with the usual allowances.

COUNTY BOROUGH OF CROYDON, CROYDON BOROUGH HOSPITAL.—Resident Medical Officer for the Croydon Borough Hospital for Infectious Diseases, for one year. Salary £120 per annum, rising to £140 at the end of six months, with board and residence.

DERBY COUNTY ASYLUM.—Second Assistant Medical Officer. Salary commencing at £110 per annum, rising to £130, with board, lodging, and washing. Apply to Medical Superintendent, County Asylum, Mickleover, Derby.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—Assistant House Surgeon. Salary £50 per annum, with furnished apartments, board, and washing.

FRENCH HOSPITAL AND DISPENSARY, 172, Shaftesbury-avenue, London.—Resident Medical Officer (not a female), speaking French, unmarried. Salary £80 a year, with full board.

HOSPITAL FOR WOMEN, Soho-square (LONDON SCHOOL OF GYNÆCOLOGY).—Clinical Assistantships.

HULL CITY AND COUNTY LUNATIC ASYLUM.—Second Assistant Medical Officer for the Asylum at Willerby. Salary £150 per annum, with board, apartments, and washing. Apply to the Town Clerk, Town Hall, Hull.

HULME DISPENSARY (not Provident), Dale-street, Stretford-road, Manchester.—House Surgeon. Salary £150 a year, with apartments, attendance, coal, and gas

KENT AND CANTERBURY HOSPITAL.—House Surgeon, unmarried. Salary £100 a year, with board and lodging.

KENT COUNTY ASYLUM, Chartham, near Canterbury.—Junior Assistant Medical Officer unmarried. Salary £125 per annum, with board, lodging, and washing.

KENT COUNTY OPHTHALMIC HOSPITAL, Maidstone.—Surgeon.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Resident Medical Officer for one year. Salary 100 guineas per annum, with board, lodging, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £70 per annum, with board and residence at the Infirmary.

MANCHESTER SOUTHERN AND MATERNITY HOSPITAL.—Resident House Surgeon. Honorarium £50 per annum and board.

NORTHERN DIVISION OF SOUTH UIST.—Medical Officer. Salary £77 10s. Apply to Mr T. Wilson, Solicitor, Lochmaddy. Clerk.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London.—Surgeon to Out-patients. Candidates must be F.R.C.S.

PARISH OF ROUSAY AND EGILSHAY.—Resident Medical Officer. Salary £51 sterling. Apply to the Clerk of Parish Council, Rousay, Orkney.

PARISH OF SLEAT.—Medical Officer and Public Vaccinator. Salary £100 per annum. Apply to the Clerk to the Parish Council, Kyleakin, Skye.

ROYAL FREE HOSPITAL, Gray's Inn-road, London.—Two House Physicians, one House Surgeon, and one Casualty House Surgeon. Appointments for six months. Board, &c., provided.

ROYAL HALIFAX INFIRMARY.—Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing.

ROYAL ISLE OF WIGHT COUNTY HOSPITAL, Ryde.—Resident House Surgeon. Salary £70, and a fee of £10 for annual course of lectures to nurses.

SALFORD HOSPITAL.—Junior House Surgeon. Salary £70 per annum, with board and residence.

SCHOOL BOARD FOR LONDON.—Medical Officer for the Board's Training Ship the *Shaftesbury*, which lies off Grays, Essex. Commencing salary £100 a year, which may be increased by £10 annually to £150 a year, with 1s. for each boy examined prior to his admission to the ship. Apply to the acting Clerk to the Managers, School Board Offices, Victoria Embankment, W.C.

STOURBRIDGE DISPENSARY.—House Surgeon. Salary £120 a year, yearly increasing by £5 to £130, with furnished rooms, coal and gas, and an extra allowance of £25 for travelling expenses. Apply to the Hon. Secretary, The Firs, Norton, Stourbridge.

SUNDERLAND INFIRMARY.—House Physician and House Surgeon. Salary £80, rising £10 annually to £100, with board and residence.

TIVERTON INFIRMARY AND DISPENSARY, Devon.—House Surgeon, unmarried. Salary £80, and board, lodging, and washing.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—Assistant House Surgeon for three months, followed by six months as House Surgeon.

WHITBY UNION.—Public Vaccinators for the Whitby Sub-District and the Urban District respectively. Apply to the Clerk to the Guardians, Whitby.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Physician for two years. Salary £100 a year, with board, lodging, and washing.

Births, Marriages, and Deaths.

BIRTHS.

BIENEMANN.—On Oct. 1st, at Kettlewell, Farnham Royal, Bucks, Margaret, wife of A. J. Bienemann, M.B., of a daughter.

THORNELY.—On Sept. 29th, at 60, Herne-hill, S.E., the wife of William Thornely, M.B., of a son.

MARRIAGES.

BONE—DURLER.—On Sept. 26th, at the parish church, Luton, by the Rev. E. R. Mason, John Wardle Bone, M.B., C.M., B.Sc., eldest son of J. R. Bone, Esq., Beaconsfield, Gateshead-on-Tyne, with Clara Alice Durler, eldest daughter of Mr. and Mrs. Durler, Whitehill, Luton.

MACDONALD—WEIR.—On August 18th, at Free St. George's, Edinburgh, by the Rev. Hugh Black, Donald G. MacDonald, M.B., C.M., D.P.H. Aberd., of Stornoway, N.B., to Amy Mary Weir, L.S.A., M.D. Brux., eldest daughter of James Galloway Weir, Esq., M.P., of Frognal, Hampstead, London.

DEATHS.

DUCKET.—On Sept. 30th, at 12, St. George's-terrace, Great Yarmouth, Clark A. Ducket, M.D., M.R.C.S., Fleet Surgeon, R.N., aged 69.

LEETE.—On Sept. 21st, at Salcombe, Arthur Henry Leete, M.D., B.Sc., M.R.C.S., L.R.C.P., elder son of the late Mr. John Leete, Finedon, aged 33 years.

WOODFORDE.—On July 17th, at Uralla, New South Wales, Alfred Ernest Woodforde, L.R.C.P., L.R.C.S. Edin., second son of W. T. G. Woodforde, M.D., of Oakbank, Spencer's-wood, Reading, in his 43rd year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

HISTORY OF MEDICAL JOURNALISM IN GREECE.

THE September number of *La Grèce Médicale* contains an interesting article by the editor, Dr. Jean Foustanos of Syra, entitled, Histoire de la Presse Médicale Grecque. Dr. Foustanos says that up to the time of the liberation of Greece, namely in the beginning of the present century, a medical man of education was extremely rare but irregular practitioners abounded. The latter were of two classes—(1) native Greeks who undertook venesection and the management of fractures and dislocations, and (2) the so-called Καλογιατροί ("médecins bons") or Ἰατροὶ τῆς Φραγκιᾶς ("médecins du pays des Francs"), who for the most part came from Italy or the Ionian Islands and wore a fantastic costume which Dr. Foustanos describes, comparing it to that of a Spanish bull-fighter. Pouqueville mentions in his history that in one of these practitioners whom he encountered in Tripolitza, the chief town of Arcadia, he recognised an ex-tobacconist from Montpellier. Greek medical science was, of course, at this period non-existent, but a very few scientific works were published in Greek, printed at great cost in Italy, and most of them in Venice. Immediately after the liberation of Greece, however, several Greek medical men of education returned to their country from Italy and other parts of Europe. In a few years a certain amount of scientific revival was apparent in Greece; the Medical Society was established in Athens and in 1836 it commenced the publication of the first Greek medical journal, called *Esculape*, after the tutelary deity of the healing art. This journal, unfortunately, had an existence of only three years (1836-1839). Since that period several medical journals have successively appeared but have all been short-lived, the medical men being numerically insufficient to support them. Dr. Foustanos gives in chronological order the following list of medical journals which have up to the present time appeared in Greece. Except in the case of the two last he does not specify the language in which they were published and we therefore reproduce the titles in French as he gives them:—

1836-1839. *Esculape*, Athens, conducted by the Medical Society.
1842-1847. *Nouvel Esculape*, Athens, conducted by G. Prinaris.
1853-1860. *L'Abeille Médicale*, Athens, conducted by A. Gouda.
1856. *Esculape* (Second Series), Athens, conducted by A. Anagnostakis, A. Zinnis, and P. Soutzos.
1858-1860. *Journal Médical*, Athens, conducted by A. Anagnostakis, and Th. Aphendoulis.
1859. *Galien*, Athens.
1860. *Le Médecin Populaire*, Athens.
1862. *Hippocrate*, Athens, conducted by P. Callivourtzis.
1863. *Hippocrate*, Zante.
1870. *Esculape*, Athens, conducted by A. Antoniades, G. Karamitzas, S. Manghinas, and A. Georgantas.
1871-1873. *Bulletin Pharmaceutique*, Athens.
1874. *Almanach, ou Journal Médical et Pharmaceutique*, Athens, conducted by Constantin Delyannis.
1874. *Almanach de Santé*, Athens, conducted by A. Diamantopoulos.
1879-1887. *Galien*, Athens, conducted by A. Georgantas, N. Maccas, N. Dellaportas, and Skiadaressis; subsequently by J. Bambas, and after him by J. Caravias and several other medical men.
1883-1885. *Journal de la Société d'Hygiène*, Athens, conducted by G. Ch. Vaphas, A. Damberghis, G. Crinos, N. Maccas, B. Patrikios, D. Caterinopoulos, and Ch. Rallis.
1884-1885. *Journal Médical Hebdomadaire*, Athens, conducted by A. Callivokas.
1884. *Journal Périodique de la Société Pharmaceutique d'Athènes*, Athens.
1885. *Le Progrès de la Médecine des Enfants*, Athens.
1889-1891. *Les Nouveaux Médicaments et les Nouvelles Cures*, Athens, conducted by Christovitz.
1890-1896. *Journal Médical de l'Armée*, Athens, conducted by Solon Chomatianos, J. Typaldos, and other military medical officers.
1896. *Revue Médicale*, Athens, conducted by Rondopoulos.
1896. *Hippocrate*, Athens, conducted by Alex. Georgiades.
1896. *Progrès Médical*, Syra, conducted by Dr. Jean Foustanos.
1898. *La Grèce Médicale*, Syra, conducted by Dr. Jean Foustanos.

Of all the above journals the only ones that survive are the two last-named, the *Progrès Médical* (Ἰατρικὴ Πρόοδος), published in Greek, and *La Grèce Médicale*, published in French.

THE DISCRETIONARY POWERS OF CORONERS AS TO HOLDING INQUESTS.

To the Editors of THE LANCET.

SIRS,—I shall be glad to know through the medium of your columns whether it is customary for a coroner to grant a certificate—not, I suppose, of the cause of death, but a certificate which permits the deceased's burial—without any medical evidence having been taken as to the cause of death. The facts on which my query is based are as follows. I was called at 7 A.M. one day to see a woman who had died

suddenly the previous night. As I had never seen her during life I told the local policeman to inform the coroner (who lives several miles distant) that I could not grant a certificate. I hear nothing from either policeman or coroner in the way of reply, and when two days afterwards I am in the same district I am told that the woman is to be buried the same day. Hoping you will give me your opinion on this matter for my future guidance, I am, Sirs, yours faithfully,

Oct. 1st, 1900. NORTHUMBRIA.

*** Before giving our opinion upon this case we should like to know whether the woman was buried upon the coroner's order and in what terms it was given. The coroner is to hold an inquiry under the Coroners Act, 1887, when there is reasonable cause to suspect that the deceased "has died a sudden death of which the cause is not known."—ED. L.

"A SINGULAR STORY OF HYPNOTISM."

To the Editors of THE LANCET.

SIRS,—With reference to an extract from a sensational article in the *Daily Mail* on this subject, and which appears in THE LANCET of Sept. 29th (p. 982), I desire to say that it is within the province of any person to enter the out-patient department of any public hospital and to burlesque what he there sees if he feels so inclined. The gentleman who attended at my hospital is a perfect stranger to me, he was courteous and gentlemanly and left expressing an opinion that he had been very interested in what he had seen. He was not there the whole time but had to leave, having an engagement at the office. His remarks, so far as related to Mr. J. May (who is a married man with two children, aged 32 years, and an electrical engineer by trade, and who attends every week at the hospital), were not judicious in their nature and admit of another construction. He apparently took exception to the furnishing of the out-patient department. So long as out-patients have benches to sit down upon and the physicians tables on which to write their prescriptions all is provided which is essential; moreover, the furniture compares very favourably with that found in most larger hospitals. The question of treating disease hypnotically has for many years been under serious consideration. In 1896 at the International Medico-Legal Congress held in New York, of which department I was chairman in the Psychological Section, many papers were read and discussions held on this subject, which was freely ventilated. On my return from the Congress, and after conference with Professor Lombroso of Turin and Dr. Gorodichze of Paris, gentlemen well qualified to form an opinion on its value, I decided to give this treatment a fair trial at my hospital. The success I experienced, especially in cases of static melancholia, folie de doute, neurasthenia, nervous deafness, chorea, and other allied nervous diseases, was of such a nature that I have been induced to continue the same with like results. In nervous cases, in which it is difficult to obtain mental concentration, and consequently direct hypnotism becomes impossible, the suggestion must be made indirectly through a transference medium. This is admitted by the authorities I have previously mentioned. This being one of the varieties of hypnotism, perhaps out of 80 cases which present themselves at the hospital there are only three or four who are so dealt with. The records, however, which I am about to publish will speak for themselves. At the late International Medical Congress at Paris the subject occupied an important position in the discussions, and in THE LANCET of Sept. 29th (p. 974) you give the proceedings before the Congress of Psychology of Paris, in which the department on hypnotism was presided over by Dr. Voisin, physician to the Salpêtrière Hospital of Paris and the leading authority in France on psychology, and you state that after the discussions the members adjourned to witness the cases treated at this hospital and at Dr. Berillon's clinic in the Rue des Arts. I have no doubt in my own mind that amongst the various hypnotic cases shown to the members were cases of transference similar to those alluded to by you. The British Medical Association some years ago formed a committee to investigate the question and many leading specialists in London now send their patients to be so treated by those experienced in its use. The general opinion is that such procedure is legitimate so long as it is carried out by qualified medical practitioners. The hospital, 208, Euston-road, has been visited by physicians, scientists, those interested in the subject, many of whom have witnessed the progress of cases undergoing treatment there. I shall be glad to welcome any person interested in the subject on presentation of his card to the secretary, as the doors are open to all, and any students desirous of witnessing the demonstrations on Thursdays at 6 o'clock will be admitted. There is one remark as to the medium and the question of his being properly hypnotised, I will challenge anyone to wake him by fair means, and shall be prepared to receive any persons you may send for that purpose to the hospital.

I am, Sirs, yours faithfully,

Devonshire-street, W., Oct. 1st, 1900. FORBES WINSLOW.

"MOTOR-CARS FOR MEDICAL MEN."

MR. C. T. W. HIRSCH, M.R.C.S.Eng., L.R.C.P.Lond., Woolwich, has sent us an account of his experiences with a motor-car, from which we extract the following:—"The car I invested in was a Benz Ideal No. 2, with a hood ..... from Messrs. Hewetson's. ..... An instructor was left for a week at the charge of 7*s.* 6*d.* a day *plus* his railway fare and meals. I am afraid I did not derive much benefit from him and when I started driving myself I must confess I had a great deal of trouble, the car frequently stopping in the street, due to my not managing the mixture properly. When this was mastered and the regulation of the coils vibrator seen to, the car went splendidly, and in addition to my doing my work in this hilly district I have had some three trips to the South Coast watering places, as well as many daily excursions of from 40 to 60 miles. The machinery on the whole is good. One of the carriage springs broke. ..... A fresh one was supplied but a charge was made for the labour, Messrs. Hewetson supplying a new spring gratuitously. The tyre on one wheel became loose, due to the wire breaking. This was also mended gratuitously, though the agent charged for the time he spent and the expenses incurred in taking the wheel to the maker's. The only other trouble of import was that the bush on the second speed loose pulley became worn, and as a result the pulley was not quite true and occasionally gripped the true pulley, and when this driving on another speed a loud noise, violent vibration, and pulling up of the machine occurred. The wearing of the bush was said to be my own fault, as though I kept the grease-box well filled the hole in the lower part must in some way have been blocked. ..... Messrs. Hewetson ..... tell me that a car has run 35,000 miles without requiring attention. I am afraid I cannot say the same for mine. Motor-cars certainly are very useful but liable to get out of order, and I question whether I would buy one again with my present experience. ....."

A POINT UNDER THE WORKMEN'S COMPENSATION ACT.

To the Editors of THE LANCET.

SIRS,—Will you kindly inform me whether it is necessary for a medical man to insure his groom against accidents under the Workmen's Compensation Act? I am, Sirs, yours faithfully,

Oct. 2nd, 1900. SUBSCRIBER.

*** Employers are not liable for servants under the Workmen's Compensation Act, 1897, but it is a question whether they will not be liable under the extension of the Act to agricultural labourers; when the duties of the servant are to attend to animals certainly a medical man in the country would be liable, and it is in any case wiser to insure, as this can be done for a few shillings.—ED. L.

AN IMPROVED CYCLE SADDLE.

WE have received from Messrs. T. Dunlop and Co. of 20, Beulah-hill S.E., a specimen of their improved Henson cycle saddle. The Henson saddle, which is of the pneumatic variety, is so constructed that there are two separate pads, with a space between them and a depression in the centre of each pad to receive the ischial tuberosities. This form of saddle is found to be very comfortable and convenient by many riders and for many it is, indeed, one of the best forms of cycle saddles. It, however, requires a little perseverence to become used to it, especially by those who have hitherto ridden a peaked saddle. In order to meet this inconvenience a peak has been added to the Henson saddle which can be removed at the option of the rider. We have tried this saddle and have found it to possess the advantages claimed for it.

THE RIGHT TO SUE FOR FEES.

To the Editors of THE LANCET.

SIRS,—I hold the M.R.C.S. Eng. and the L.R.C.P. Lond. qualifications and want to know if I can sue a patient for professional attendance and medicines. I think I can as I know a brother medico who holds the Edinburgh qualifications who is constantly putting people in the county court, but I have been told by an L.S.A. that it is necessary to have that qualification in order to sue for medicines supplied. I should therefore be much obliged for an authoritative statement from you on the subject. I am, Sirs, yours faithfully,

Oct. 1st, 1900. SUBSCRIBER.

*** It is not necessary to hold the L.S.A. If our correspondent was qualified and registered before 1887 he is entitled by Section 31 of the Medical Act of 1858 to practise according to his qualifications and to demand and recover in any court of law ..... reasonable charges for professional aid, advice, and visits and the cost of any medicines ..... rendered or supplied by him to his patient. If registered after 1887 he may practise medicine, surgery, and midwifery and recover in course of law expenses for medicaments (Medical Act, 1886, Section 6). An exception is made under both these Acts as to Fellows or Members of a College of Physicians.—ED. L.

THE MOUNTING OF MUSEUM SPECIMENS.

To the Editors of THE LANCET.

SIRS,—Will any of your readers kindly inform me of any literature giving a full description of the modern methods followed in the preservation and mounting of museum specimens.

I am, Sirs, yours faithfully,

Oct. 2nd, 1900. F. A. W.

PERIPHERAL NEURITIS.

To the Editors of THE LANCET.

SIRS,—Will any of your contributors oblige me by stating where and under what title I may order the latest literature on the subject of peripheral neuritis? Thanking you in advance,

I am, Sirs, yours faithfully,

Oct. 3rd, 1900. MEDICUS.

ERRATUM.—In our last week's issue in the list of books received from Messrs. J. & A. Churchill "The Theory and Practice of Medicine" should read "The Theory and Practice of *Hygiene*."

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Stewart's Instruments.)

THE LANCET Office, Oct. 4th, 1900.

Date	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb	Dry Bulb.	Remarks at 8.30 A.M.
Sept. 28	29·63	S.W.	0·36	112	63	53	55	58	Overcast
,, 29	29·89	S.W.	0·03	107	69	51	52	53	Fine
,, 30	29·85	S.W.		109	66	52	57	61	Cloudy
Oct. 1	29·88	N.W.	0·15	101	67	48	50	51	Fine
,, 2	29·84	SSW	...	100	65	51	54	56	Cloudy
,, 3	29·85	N.W.	...	96	60	49	49	51	Cloudy
,, 4	29·87	S.E.	...	90	62	47	51	54	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

WEDNESDAY (10th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.)

THURSDAY (11th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.) University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

FRIDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

SATURDAY (13th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (8th).—MEDICAL SOCIETY OF LONDON.—8 P.M. General Meeting. 8.30 P.M. Ordinary Meeting. Address: Mr. J. H. Morgan (President): The Romance of Surgery.

TUESDAY (9th).—SOCIETY FOR THE STUDY OF INEBRIETY (Medical Society's Rooms, 11, Chandos-street, Cavendish-square, W.).—3.30 P.M. Council Meeting. 4 P.M. Surgeon-Major Poole: Inebriety, a Crime or a Disease.

THURSDAY (11th).—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Dr. Elder, Dr. R. T. Smith, Dr. H. Snow, and Mr. B. Jessett. Paper:—Dr. H. Smith: Treatment in Gynæcology.

FRIDAY (12th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Address by the President. Papers:—Sir Dyce Duckworth and Mr. H. Marsh: A Case of Acute Actinomycosis.—Mr. C. Mansell Moullin: Three Cases of Gastrotomy for Hæmatemesis.—Dr. N. Dalton: The Sequel to a Case of Hydatid of the Liver, showing also the Result of Abdominal Section in Ascites.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (8th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Galloway: Consultation. (Skin.)

TUESDAY (9th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Taylor: Consultation. (Medical.)

WEDNESDAY (10th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—5 P.M. Sir W. Gowers:—Clinical Lecture: The Diagnosis of Epilepsy.

THURSDAY (11th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Consultation. (Surgical.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Poynton: Demonstration of Selected Cases.

CHARING-CROSS HOSPITAL.—4 P.M. Dr. J. Mitchell Bruce: Medical Cases in the Wards. (Post-graduate Course.)

FRIDAY (12th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—2-3.30 P.M. Dr. H. Campbell: Class. Clinical Examination of the Nervous System. Demonstration IV. 4 P.M. Mr. T. Collins: Consultation. (Eye.)

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Office, 423, Strand, London, W.C.

During the week marked copies of the following newspapers have been received: *Cambrian, Derbyshire Times, Stockport Advertiser, Portsmouth Times, Birkenhead News, Gloucester Journal, Birmingham Daily Post, Gloucester Herald, Daily Nation (Dublin), Manchester Evening Chronicle, Sheffield Independent, Leeds Mercury, Citizen, Scotsman, Times of India, Pioneer Mail, Liverpool Daily Post, Architect, Builder, Bristol Mercury, South Wales Daily News, Yorkshire Post, Lowestoft Standard, Ceylon Standard, Health, Madras Standard, Perth Courier, Manchester Guardian, Engineer and Iron Trades Advertiser, Christian, Aberystwyth Observer, Farm and Home, Sanitary Record, League Journal, Bath Herald, Hastings News, Reading Mercury, Abingdon Herald, Hertfordshire Mercury, City Press, Westminster Gazette, Local Government Chronicle, Mining Journal, Ilford Guardian, Local Government Journal, Surrey Advertiser, Essex Weekly News, Flintshire Observer, Horse Guards Gazette, The Sun, Weekly Irish Times, Woodbridge Reporter, Grocer's Journal, Caterham Free Press, Sleaford Journal, Bayswater Chronicle, Saltburn Times, Thirsk News, Cornish Times, Peterborough Standard, Weekly Free Press and Aberdeen Herald, Coventry Times, Braintree Advertiser, Dorking Advertiser, Glamorgan Free Pree, West London Observer, Eastern Daily Press, &c., &c.*

Communications, Letters, &c., have been received from—

A.—Professor Clifford Allbutt, Cambridge; Agnes, St. Helens; Anti-Opium Societies' Representative Board, Chairman of; A. L. S.; Anglo-American Pharmaceutical Co., Croydon; Association for Pure Vaccine Lymph, Lond.; Apothecaries Hall of Ireland, Dublin.

B.—Mr. C. Birchall, Liverpool; Messrs. Boulton and Paul, Norwich; Boot's Pure Drug Co., Nottingham; Dr. J. G. Blackman, Portsmouth; *British and Colonial Druggist*, Lond.; Dr. J. C. Buckley, Nottingham; Birmingham City Fever Hospital, Medical Superintendent of; Messrs. Burroughs, Wellcome and Co., Lond.; Mr. F. Boehm, Lond.; British Museum, Natural History, Director of; Dr. A. Brownlie, Redcar; Mr. S. H. Benson, Lond.; Mr. W. H. Brooks, Leicester; Mr. W. Beck, Luton.

C.—Mr. H. S. Collier, Lond.; Messrs. Cassell and Co., Lond. Messrs. T. Cook and Son, Lond.; Cortland Wagon Co., Lond.; Messrs. J. and A. Churchill, Lond.; Chester General Infirmary, Secretary of; Dr. J. Cunningham, Campbeltown; Mr. J. E. Cornish, Manchester; Mr. S. S. Campion, Northampton; Children's Hospital, Nottingham, Secretary of; Dr. A. J. Chalmers, Liverpool; Cardiff Infirmary, Secretary of, Mr. J. Cæsar, Sheerness.

D.—Dr. M. Dockrell, Lond.; Paul E. Derrick Advertising Agency, Lond.; Dr. G. W. Davis, Sidcup; Mr. Gerald Dalton, Lond.; Mr. H. Dickinson, Lond.; Messrs. Dixon and Hunting, Lond.; Durham County Asylum, Winterton, Steward of; Derby County Asylum, Mickleover, Secretary of; Messrs S. Deacon and Co., Lond.

E.—Dr. Edridge-Green, Lond.; Dr. J. G. Emanuel, Birmingham; Dr. J. Edmunds, Lond.; Dr. Engel, Berlin; Examination Hall, Lond., Secretary of; Surgeon-General Evatt, Devonport.

F.—Mr. J. K. Frost, Kingstone; *Feilden's Magazine*, Editor of; F. S. L.; Dr. W. J. Fenton, Lond.; F. A. W., Lond.; Dr. J. C. Fisher, Lytham.

G.—Dr. H. C. Garth, Lond.; Messrs. W. Green and Sons, Edinburgh; General Prisons Board, Ireland, Chairman of.

H.—Mr. M. Haigh, Melksham; Mr. C. S. W. Hirsch, Woolwich; Hull Corporation, Town Clerk of; Hovis Bread Flour Co., Macclesfield; Hunterian Society, Hon. Secretary of; Hulme Dispensary, Manchester, Hon. Treasurer of.

J.—*Journal of Gas Lighting*, Editor of; J. P.

K.—Kent County Ophthalmic Hospital, Maidstone, Secretary of; Kelpion Co., Lond.; Messrs. Keith and Co., Edinburgh; Dr. C. F. Knight, Edinburgh.

L.—Dr. D. Lawson, Banchory; Mr. A. Leckie, Lond.; Messrs. Lee and Nightingale, Liverpool; Dr. W. Lazarus-Barlow, Lond.; L. R., Hove; L. R., Lond.; Mr. H. K. Lewis, Lond.

M.—Dr. J. Moore, Farnborough; Mr. J. Marshall, Newport, Mon.; Mr. W. St Clair Mackenzie, Lond.; Mr. C. G. S. Menteath, Lond.; Manchester Royal Infirmary, Secretary of; Medical Graduates' College, Lond.; Medical Society of London, Registrar of; Mr. J. H. Morgan, Lond.; Medicus, Liverpool; Dr. Norman Moore, Lond.; Mellin's Food, Ltd., Lond.

N.—Dr. E. F. M. Neave, Frickheim: Northumbria, Guilsford; Nightingale Fund, secretary of; Messrs. Neyroud and Son, Lond.; Mr. G. T. W. Newsholme, Sheffield; National Provident Institution, Lond.; Mr. C. P. Newcombe Lond.

O.—Dr. W. Osler, Baltimore.

P.—Mr. Y. J. Pentland, Edinburgh; Patent Fish Food Syndicate Greenock; Dr. F. J. Poynton, Lond; Mr. R. O. Pickin, Lond.

R.—Mr. W. M. Riley, Hereford; Royal College of Surgeons of England, Sec. of; Mr. E. J. Reid, Lond.; Royal Halifax Infirmary, Secretary of; Mr. J. Rogers, Lond; Mr. E. C. Ryall, Lond; Messrs. Reynolds and Branson, Leeds; Royal London Ophthalmic Hospital, Secretary of; Royal Free Hospital School of Medicine, Secretary of; Mr. R. Hamilton Russell, Melbourne; Sir W. B. Richmond, Lond.; Herr. O. Rothacker, Berlin; Messrs. Robertson and Scott, Edinburgh.

S.—Dr. W. G. Savage, Cardiff; Dr. S. H. Snell, Scarborough; Mr. A. Spranger, Lond.; Messrs. Smith, Elder and Co., Lond.; Seamen's Hospital Society, Secretary of; Stourbridge Dispensary, Hon. Secretary of; Sunderland Infirmary, Secretary of; Messrs. G. Street and Co., Cornhill; Messrs. W. Sugg and Co., Lond.; Smith's Advertising Agency, Lond.; St. Andrew's Hospital, Northampton, Secretary of; Subscription News Co., Chicago; Messrs. W. H. Smith and Son, Liverpool; Messrs. Southall Bros. and Barclay; Salford Royal Hospital, Secretary of.

T.—Mrs. J. Turner, Bedford; Tiverton Infirmary, Hon. Secretary of; *The Indian Review*, Editor of; Mr. A. H. Tubby, Lond.; Tamar Indien Grillon, Proprietor of.

V.—Mr. J. W. Vickers, Lond.

W.—Dr. Forbes Winslow, Lond.; Dr. F. J. Waldo, Lond.; Sir John Williams, Lond.; Lieutenant-General Williams, Totland Bay; Mr. S. Wand, Leicester *Wealth*, Lond., Editor of; "Whitaker's Almanack," Editor of; Professor A. E. Wright, Netley; W. B. C.; Messrs. J. Willing, jun., Lond.

Y.—Dr. E. S. Yonge, Manchester; Dr. Meredith Young, Stockport.

Letters, each with enclosure, are also acknowledged from—

A.—Mr. K. M. Appiah, Durbar, India; Agency Surgeon, Rajkot, India; A. B., Brockenhurst; Messrs. Allen and Hanburys, Lond.; A. J. H. Dr. J. F. Armstrong, South Shields.

B.—Mr. E. Bennett, Liverpool; Dr. J. M. Barbour, Swanage; Dr. W. B. Bell, Wallasey; Mr. J. C. Bretland, Belfast; Mr. F. E. Bennett, Margate; Mr. R. R. C. Baledon, Bristol; Messrs. F. B. Benger and Co., Manchester; Mrs. B; B. B.; Messrs. Brady and Martin, Newcastle-on-Tyne; Dr. L. Bruce, Brechin.

C.—Messrs. J. and A. Carter, Lond; Capsuloid Co., Lond.; Corporation of Birmingham, Treasurer of; C. B.; C. M. F.

D.—Mr. D. Davies, Lond.; Mr. M. Deeprose, St. Leonard's-on-Sea; Mr. D., Dumfries Royal Infirmary, Treasurer of.

E.—Mr. J. R. Essex, Pontypool; Mr. J. Evans, Talsarn; E. H.; E. B.; E. R.; E. C.

F.—Messrs. Fletcher, Fletcher, and Co., Lond.; F. C. H. M.; F. G.

G.—Dr. J. H. R. Glenn, Dublin; Mr. M. B. Gorman, Canolin; Mr. O. W. Gange, Tuxford; G. S. H., Messrs. Goodworth and Worboys, Winterton; Messrs. Gordon, Alexander, and Co., Glasgow; G. N. E.; G. W. G.; G. S.; G. R. Y.; G. S. S.; Mr. G. H. Gemmell, Edinburgh.

H.—Mr. J. W. Haward, Lond.; Mr. T. F. Hasly, Gillingham; Mr. C. Hawkins, Ramsgate; Mr. C. H. Harding, Whittlesea; Messrs. Hooper and Co., Lond.; H. D.; H. A.; Dr. A. Holt, Lond.; Mr. M. J. Houghton, Ilford.

I.—Dr. W. A. Illingworth, Bellingham.

J.—Dr. W. B. Jones, Llangammarch; J. S.; J. A. W.; J. A. A.; J. R. S.; Mr. J. P. Jones, Corris.

K.—Mr. W. P. Kirwan, Oranmore, Ireland; Dr. D. Kyle, Glasgow; Dr. J. P. Kitson, Cleobury Mortimer.

L.—Mr. S. G. Longworth, Melton; Mrs. Lappin, Gilford, Ireland; Mr. C. J. Lathbury, Dunstable; Miss Longstaff, Lond.; L. B.; Liverpool Infirmary for Children, Hon. Secretary of; Lœum Tenens, East Molesley.

M.—Dr. D. J. Macdonald, Stornoway; Mr. E. P. Marett, St. Lawrence, Jersey; Manchester Clerical, &c., Association, Secretary of; Messrs. Chas. Midgley, Manchester; Mr. J. Milne, Lond.; Dr. C. W. MacGillivray, Edinburgh; Mr. W. Madden, Hospital; Mr. J. Moynihan, Redcar; Manchester Medical Agency, Secretary of; Dr. E. J. Martin, South Kirkby.

N.—Northern Medical Association, Glasgow; North Shields, &c., Infirmary, Secretary of; National Sanatorium for Consumption, Bournemouth, Secretary of.

O.—Mr. G. Olliver, Brighton; Mr. R. O'Callaghan, Lond.; Mr. D. O'Sullivan, Kinsale.

P.—Mr. J. R. Plant, Eastbourne; Poplar Hospital, Secretary of; Preston Royal Infirmary, Secretary of; Mr. J. Pond, Norwich.

Q.—Queen's College, Galway, Registrar of.

R.—Dr. D. Robertson, Manchester; R. C. G; Mr. B. M. Reynolds, St. Leonard's; Rebman, Ltd., Lond.; R. W. J.; Rochdale Infirmary, Secretary of; Rotunda Hospital, Dublin.

S.—Rev. E. Spencer, Tavistock; Mr. F. J. Stephenson, Felstead; Dr. E. L. Tyler Smith, Shanklin; Mr. J. Startin, Lond.; Messrs. R. Shaw and Co., Manchester; Dr. E. Stewart, East Grinstead; S. V.; S. H. S.; Scalpel, Lond.; S. F. M.; S. W., Chorley; Mr. G. Scholpp, Lond.; Surgery, West Croydon; Surgeon, Beckenham; Mr. W. J. Scott, Shrewsbury.

T.—Mr. P. M. Toma, Portland; Dr. W. Thornely, Lond.; Dr. Thomas, Taff's Well; T. L. B.; T. F. H.; Mr. J. Thin, Edinburgh; Messrs. V. N. Turvey and Co., Lond.

W.—Mr. J. Warwick, Penrith; Mrs. Wysard, St. Leonard's-on-Sea; Dr. W. A. H. Wilkinson, Gainsborough; W. E. T.; Mr. J. Ward, Lond.; W. G. H.; Dr. R. L. Woollcombe, Dublin; Mr. C. S. Wallace, Lond.; Wigmore Nurses' Coöperation, Lond; Mr. J. Williams, Bradford; Messrs. H. Wilson and Son, Lond.; W. H. M.; W. F. G.; W. S.

EVERY FRIDAY.

THE LANCET.

PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements	Ditto	0 4 6
	Every additional Line	0 0 6

Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

Terms for Position Pages and Serial Insertions on application.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice, but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to Advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France.—J. ASTIER, 8, Rue Traversière, Asnières, Paris.